INDEX O'
PAGE 22

BUSINESS WEEK

INDEX YEAR AGO

J. D. Wright: A new style of management for Tapco (page 180)

A McGRAW-HILL PUBLICATION

OCT. 23, 1954

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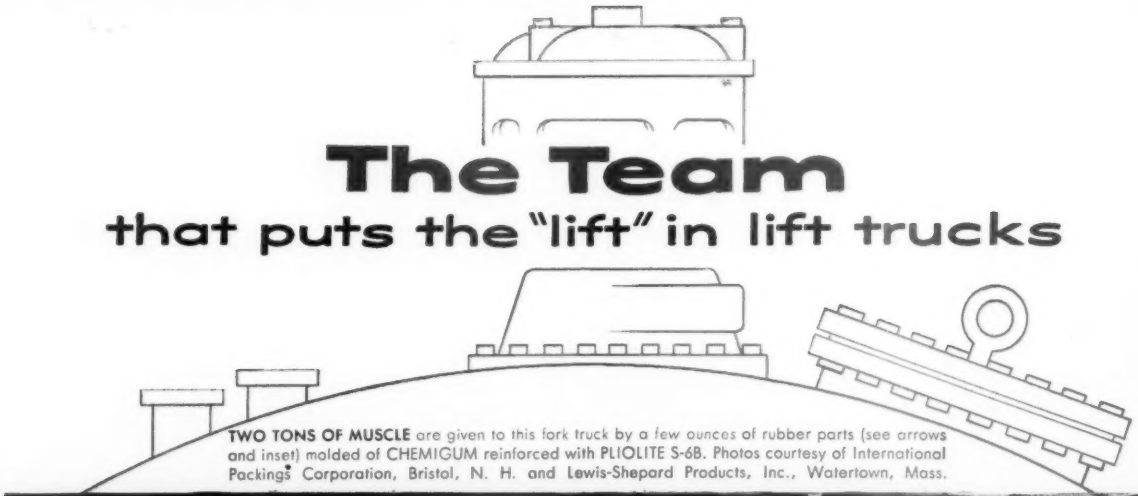
The Team
that puts the "lift" in lift trucks



TWO TONS OF MUSCLE are given to this fork truck by a few ounces of rubber parts (see arrows and inset) molded of CHEMIGUM reinforced with PLIOLITE S-6B. Photos courtesy of International Packings Corporation, Bristol, N. H. and Lewis-Shepard Products, Inc., Watertown, Mass.

Hidden from sight in this powerful fork truck are several small rubber parts essential to its ability to lift. These are the "O" rings, packing followers and wiper seals in the packing assemblies of the hoist and tilt rams. They perform the vital jobs of keeping the hydraulic oil in the cylinder and keeping dust and dirt out.

Making such parts presented problems to their supplier. They had to be strong, snug-fitting and easy-sliding. And they had to stay that way in face of constant exposure to oil. These rigid requirements were satisfied by molding the parts of CHEMIGUM—first, now finest of the oil-resistant, nitrile rubbers – reinforced with PLIOLITE S-6B – the outstanding high styrene copolymer.

The CHEMIGUM was selected because its excellent oil-resistance would permit sustained strength, resilience and dimensional stability. The PLIOLITE S-6B was used to obtain just the right hardness, smoothness and faithful mold reproduction. Together they formed an easy-processing, top-performing product that exactly filled the bill. How can they help you? Details? Just write to:

Goodyear, Chemical Division,
Dept. V-9415, Akron 16, Ohio

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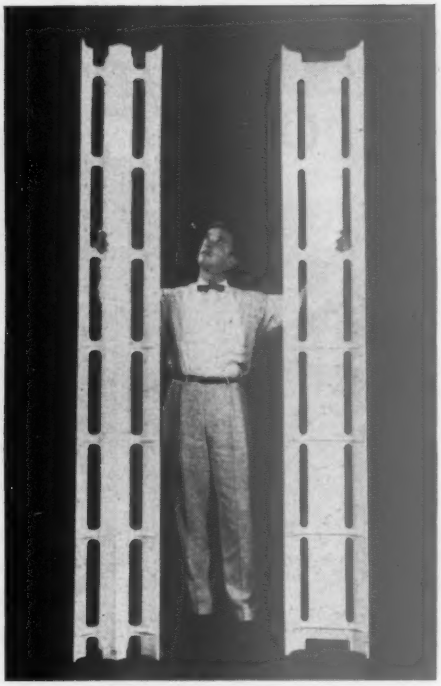
Chemigum, Pliobond, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

Use-Proved Products — CHEMIGUM • PLIOBOND • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS — The Finest Chemicals for Industry

Now! the Industrial Lighting Value of Your Lifetime



FULL 8-FOOT PORCELAIN REFLECTORS! An exclusive Lifetime CFI feature! Reduces handling time during installation and improves alignment of fixture runs. Every square inch of reflection surface is finished in snow-white **LIFETIME PORCELAIN ENAMEL.** Reflection factor 85% or more.

THE NEW LIFETIME CFI SERIES

Day-Brite announces the sensational new CFI-25 with 25% upward lighting component and the new CFI-10 with 10% upward lighting component—both with important new features that promise a lifetime of unparalleled lighting performance.

From Day-Brite, the pioneer, came many of the early developments in uplighted industrial features.

Now—from Day-Brite, the leader, comes a great new development in industrial lighting—the new Lifetime *CFI series.*

Today, the CFI-25 brings industry all the desirable comfort benefits of 25% uplighting *within a practical price range.* Until now, no other manufacturer has succeeded in producing advanced visual comfort for industry at an economically justified price.

See for yourself! Examine it yourself! Compare Day-Brite CFI-25 and CFI-10 with any other industrial fixture on the market.

CFI-25 REFLECTOR SUPPORTS 358 POUNDS! Here's a rugged test for any reflector. Supported only at ends, the 8-ft. CFI-25 reflector supports the weight of a 358-pound man—no sag, no spread, it remains rigid. New ribbed construction gives extra strength, assures straight, true alignment of continuous runs of fixtures.

491

"DECIDEDLY BETTER"
DAY-BRITE
Lighting Fixtures

See! Examine! Compare!

You must see this revolutionary new development in industrial lighting yourself to appreciate the lifetime advantages it offers. Mark your calendar now to arrange for a Lifetime CFI demonstration. See your local Electrical Contractor.

Day-Brite Lighting, Inc., 5474 Bulwer Ave., St. Louis 7, Mo. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

It will serve on any Panel...

Added Evidence that—

Everyone Can Count on VEEDER-ROOT

REPORTER AT LARGE . . . that's what you might call this new Veeder-Root Reset Magnetic Counter . . . adaptable to remote counting from machines or processes to central boards or instrument-clusters, wherever you want to put them. NOW . . . what can your imagination do with these few facts? For the *full facts,* write:

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51,816 Webster Traps...

averaged 30.3 YEARS of service

. . . and they're still going strong!

That's what a Webster Radiator Trap survey showed—a survey of 16 installations.

Maintenance costs per year per unit—based on the average of the 51,816 traps—was 2.8¢. And 20,850 of these traps averaged less than .8¢ per trap—less than a penny a year!

Famous for low cost per year of service, Webster Traps prevent steam loss, save fuel, and provide continuous, complete, automatic discharge of air and water of condensation.

Available in 1/2", 3/4" and 1" sizes, in many body models. Choice of Diaphragm or Sylphon Bellows type. Call your Webster Representative, or write us for Bulletin C-536.

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AND

Other Webster Heating Equipment for commercial and industrial use includes Webster Tru-Perimeter Heating with steam or forced hot water; Webster Convectors; Webster Moderator Systems of Steam Heating, and continuous flow controls for hot water heating—both with outdoor thermostat; and Unit Heaters. Data on request.

Look, Dad—They prin

PEEK-A-BOO RADIO by Hallicrafter tells Junior at a glance why it's easier not only to assemble but to service. Through the transparent case you can plainly see the *printed* wiring. Neat, compact, thin as paper, this wiring is etched from a special kind of copper made by Anaconda.

wires now!

In a wide variety of electronic wonders—from hearing aids to guided missiles—printed wiring, etched from paper-thin Anaconda "Electro-Sheet" Copper, saves space, time, and money.

Remember the time you tried to fix the radio?

Inside you found a maze of wires. You hustled it down to the corner repair shop. It was no job for a novice.

Look in some of today's radios. The wires are gone—or seem to be. They are *printed!*

HOW IT'S DONE

Very thin copper—called "Electro-Sheet"—is bonded to a plastic laminate panel. On this copper sheet you print the wiring circuit you want with an ink that resists acid. Then you etch away the unwanted metal, leaving the pattern intact. This type of circuit is far superior to wires. It is accurate, compact and stable. Next you snap-fasten tube sockets and other parts in place and dip-solder the connections. To make a hundred electrical connections this way takes only a few seconds.

With printed wiring and other devices—such as transistors—electronic experts are concocting match-box-size hearing aids, vest pocket radios, more compact TV sets and portable electronic "brains." They are speeding up the production of precision instruments vital in the operation of aircraft and control of guided missiles.

WHERE THE COPPER COMES FROM

"Electro-Sheet" was developed and is made only by Anaconda*. Down at the Raritan Copper Works of the International Smelting and Refining Company (an Anaconda subsidiary) at Perth Amboy, N. J., production engineers turn it out in a wide range of thicknesses, as thin as one-thousandth of an inch (½ as thick as this page) and in five-foot-wide rolls thousands of feet in length.

WINDS MAY BLOW. Rain, snow, sleet may come. Weather will be locked out. Today, many architects and builders specify fabric-, mastic-, or paper-backed "Electro-Sheet" for effective, low-cost concealed flashing, waterproofing and dampproofing.

Besides printed circuits, Anaconda "Electro-Sheet" is ideal for a wide range of electrical applications such as static shielding, contacts and capacitors. Builders use it as an easily applied concealed flashing, an efficient vapor barrier and for economical waterproofing (see photo above).

There are dozens of other uses—gaskets, cable wrapping, hydrogen-furnace brazing metal, utility-pole capping, to name a few. Because so many new jobs are being found for "Electro-Sheet," Anaconda is making more and more of it.

To provide the copper for "Electro-Sheet," and thousands of other copper, brass, and bronze products, Anaconda has developed vast new ore bodies and has expanded production capacity from mine to finished products.

There will be plenty of copper. On the drawing boards of peacetime U. S. industry, copper has the green light—for years and years to come. 64231

**Inquiries on Anaconda "Electro-Sheet" Copper should be addressed to The American Brass Company, Waterbury 20, Conn.*

ANACONDA®

PRODUCERS OF: Copper, zinc, lead, silver, gold, platinum, cadmium, vanadium, selenium, uranium oxide, manganese ore, ferromanganese and superphosphate.

MANUFACTURERS OF: Electric wire and cable, copper, brass, bronze, and other copper alloys in such forms as sheet, plate, tube, pipe, rod, wire, forgings, stampings, extrusions, flexible metal hose and tubing.

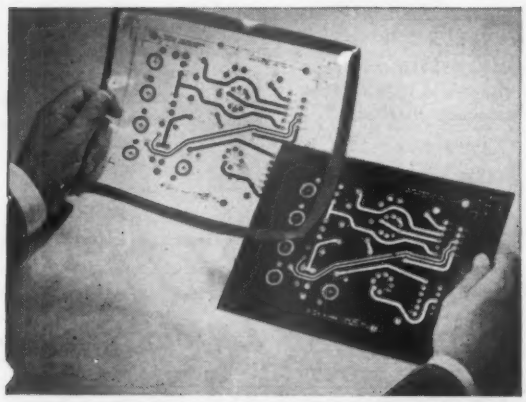
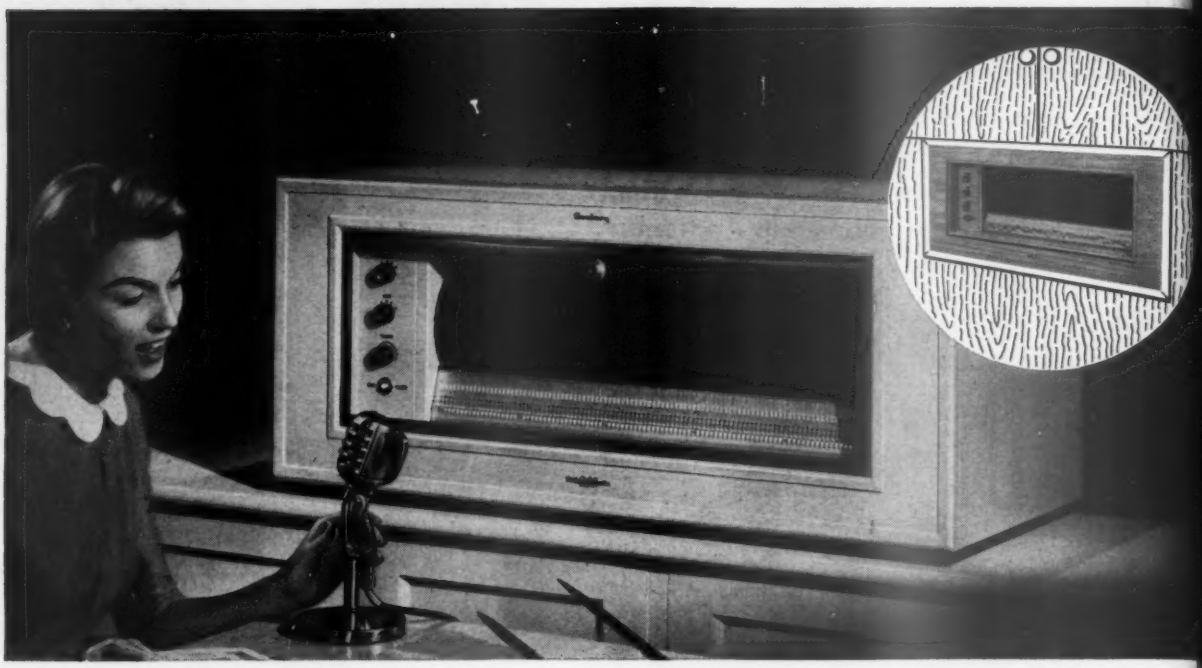


PHOTO COURTESY TECHNOGRAPH PRINTED ELECTRONICS, INC.

OPPER MAGIC makes a new kind of wiring. At left is wiring cir-it on film before "printing". This pattern is then transferred copper sheet bonded to plastic. At right, unwanted copper is been etched away, leaving the finished wiring board.

ON HUGE LEAD DRUMS Anaconda turns out "Electro-Sheet" copper weighing from ½ to 7 oz. per square foot. Drums rotate in a copper sulphate solution. Electricity deposits copper on the drums in smooth, clean, continuous sheets.



The Seeburg Library Unit. *Attractive limed oak cabinet.* **The Seeburg Custom Unit** *(inset) for built-in installations. Mounted on sturdy sliding metal tracks. Both units have high fidelity pre-amplifier and pickup.*

music will benefit

The benefits of music upon factory and office personnel gains greater recognition every day. Music combats the boredom of repetitive tasks... music reduces absenteeism and labor turnover . . . music builds morale . . . music increases office efficiency and factory production.

You can put the benefits of music to work easily and economically with Seeburg Background Music Service.

THE SEEBURG PLAN. Highlight of the plan is a LEASE-PURCHASE agreement covering all the equipment. Monthly payments apply toward eventual ownership of the entire sound system. The Seeburg Background Music Library, which includes a refresher service every 30 days, is available at a separate monthly rate.

THE SEEBURG BACKGROUND MUSIC SERVICE. The distinctive feature of this modern music service is the Seeburg Background Music Library. Every selection has been carefully arranged and scientifically programmed for work and atmosphere music.

The music is recorded "live" by outstanding orchestras in Hollywood, Munich and Vienna. It is mastered and pressed to exacting high fidelity standards by RCA-Victor on 45 RPM Extended Play Discs of pure virgin Vinylite (no filler). Frequency range is from 30 cycles (low frequency) to 15,000 cycles (high frequency) per second.

THE SEEBURG MUSIC SYSTEM. Nucleus of the system is the world-famous Seeburg Select-O-Matic mechanism . . . the most revolutionary development for the playing of recorded music since the invention of the phonograph. The Select-O-Matic is completely automatic —no attendants are required. However, the Select-O-Matic permits playing individual records if desired.

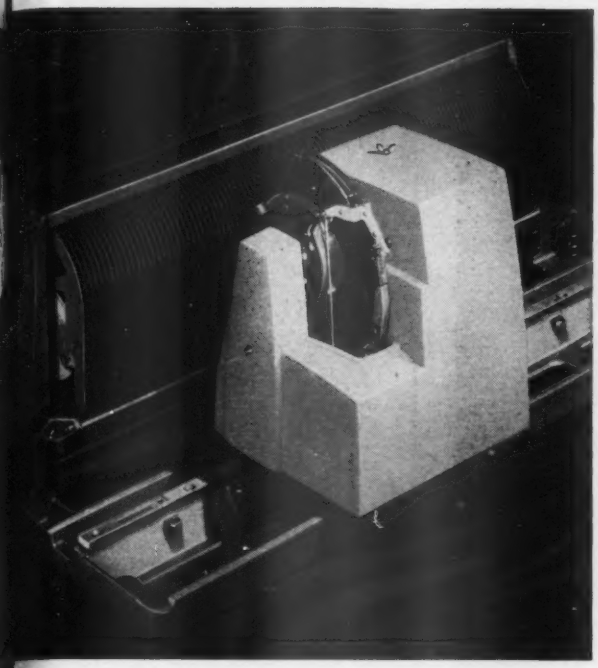
PAGING SERVICE. A complete, efficient, easy-to-use paging and public address system is also provided.

TRUE HIGH FIDELITY. The Seeburg Music System is high fidelity all the way including a high fidelity pre-amplifier, a high fidelity magnetic pick-up with genuine diamond styluses and specially designed Seeburg extended range remote speakers. So now, background music and high fidelity reproduction become one and the same thing.

WORK AND ATMOSPHERE

SEEBURG
Background Music Service

J. P. Seeburg Corporation, Chicago 22, Illinois



The Select-O-Matic Mechanism. *Heart of the Seeburg System. Completely automatic operation. Plays the records vertically.*

The Seeburg Background Music Library. *Mastered and pressed by RCA-Victor on Seeburg label. Monthly refresher service.*

your business

Factories, offices, banks, savings and loan associations, hotels, clubs, stores, institutions know the benefits of background music.

A Seeburg Console for your home. *Real selectivity. Full-spectrum high fidelity. Light Korina or rich mahogany cabinet.*

WRITE FOR INFORMATION. Learn how easily you can supply the benefits of music to your business. You'll find the Seeburg Plan is as unusual in concept as the Seeburg System is brilliant in performance.

MAIL THE COUPON

J. P. Seeburg Corporation, Chicago 22, Illinois

☐ Please send data on Seeburg Background Music Service.

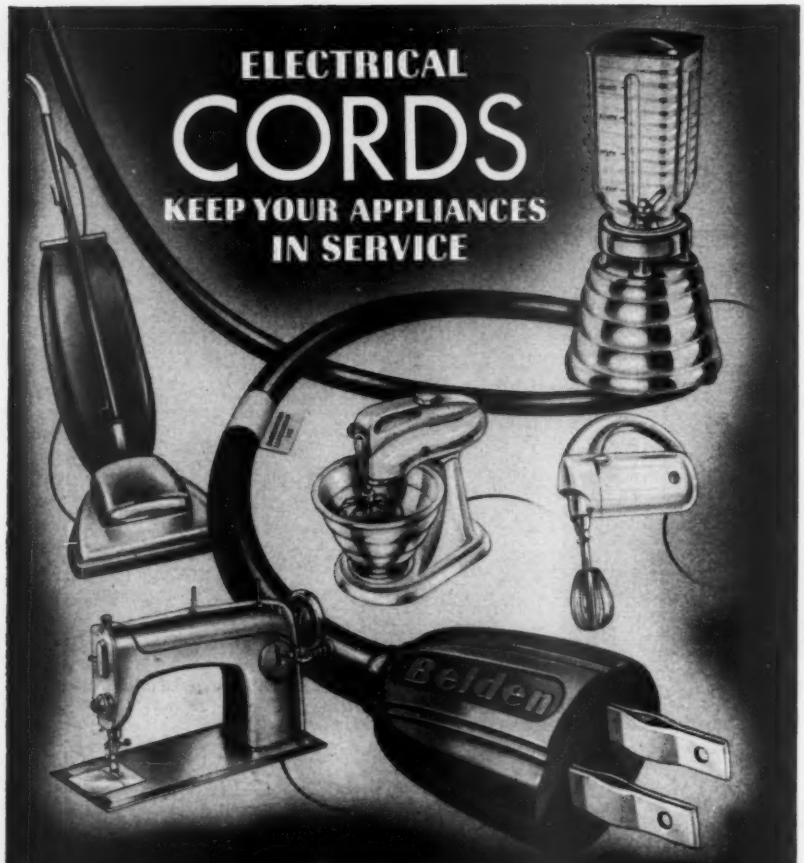
☐ I'm interested in a Seeburg Select-O-Matic for my home.

Name.....Position.....

Company.....

Address.....

City.....Zone.....State.....



The purchase price represents only the starting point in figuring the over-all costs of electrical cords.

Add to that: receiving inspection costs — assembly costs — line inspection costs — and the costs of failures in service. The total is the real cost of cords.

If you think in terms of *actual* over-all profit— it will pay you to do business with Belden.

Save Time, Save Money

Specify Belden

Belden Manufacturing Co.
4689-A W. Van Buren St., Chicago 44, Ill.

MANUFACTURERS WHOSE PRODUCTS SERVE BEST...

Specify **Belden**

WIREMAKER FOR INDUSTRY

READERS REPORT

Easy Does It

Dear Sir:

Congratulations on your recommending skiing for middle-aged executives (BW—Oct.2'54,p167).

I took up skiing when I was over 50 years old and, in spite of my arthritis, have enjoyed it greatly, and I am sure that my health is far better. . . .

As far as the possibility of broken bones is concerned, my observations from watching many skiers who have not developed control . . . caused me to wonder why there weren't far more accidents. . . .

The prices that you put on boots and skis are far higher than need be paid for equipment which is entirely satisfactory for the pleasure skier.

In my first lesson, I was taught the principles of safety: (1) Don't ski when you're tired; (2) don't try to ski the hill that's so steep it scares you; (3) when you think you are going to move too fast, turn and stop before you *are* going too fast.

PHELPS INGERSOLL
PRESIDENT
WILCOX, CRITTENDEN & CO., INC.
MIDDLETOWN, CONN.

Dear Sir:

Just where do they place the ambulances? This is one of the best in advertising. What ski spa furnished it? Please send me a complete list of the injured next May—this you owe to your admirers and readers.

C. RAY VINCENT
CORONADO, CALIF.

• The list should be very short if aspiring skiers heed Reader Ingersoll's principles of safety.

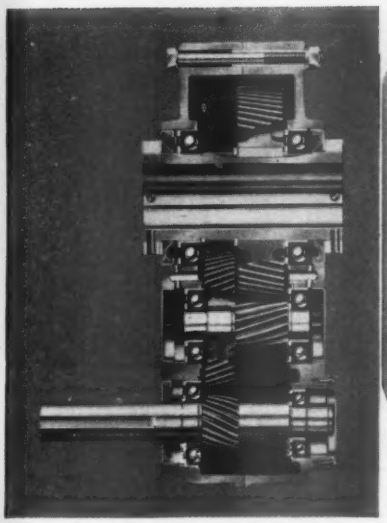
Credit Where Due

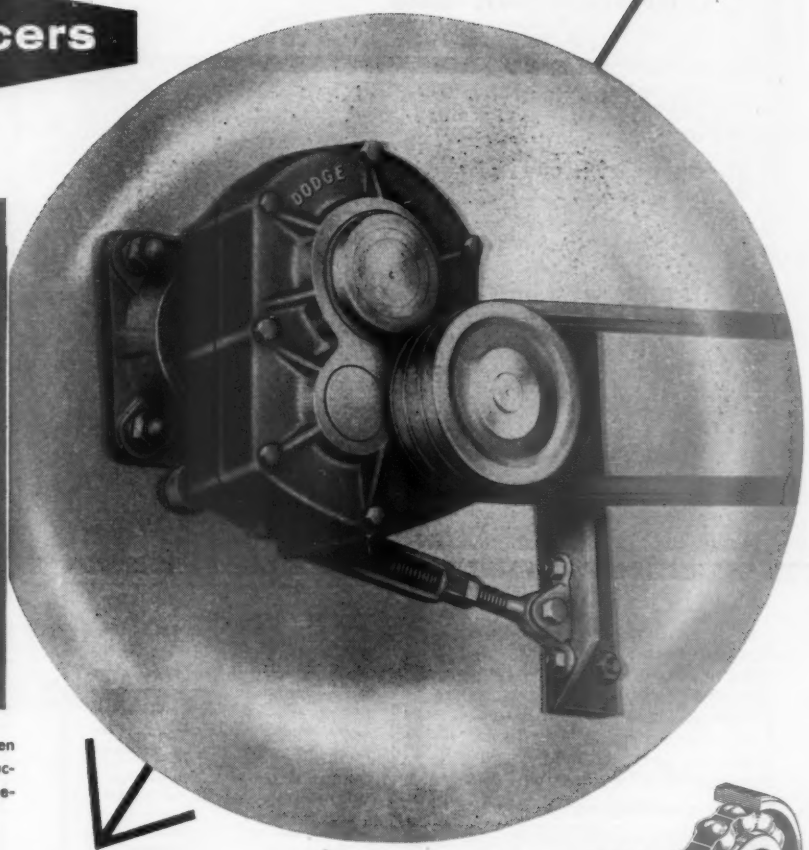
Dear Sir:

We were much pleased to see . . . the way in which you used color charts to present some of the facts about the number, distribution, employment status, etc. of older persons in the United States, as taken from our forthcoming study, Economic Needs of Older People (BW—Sep.25'54,p103).

Regrettably, you omitted the

Reducing Costs In Speed Reducers





New Departure **ball** bearings are used in seven basic sizes of the Dodge single and double reduction speed reducers, handling from 1 to 43 horsepower at output speeds from 12 to 330 r.p.m.

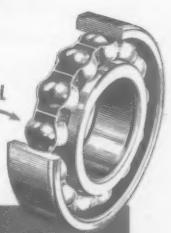
. . . with NEW DEPARTURES

Dodge Manufacturing Corporation's Speed Reducers make good use of design advantages offered by New Departure snap-ring **ball** bearings.

The snap rings locate the bearings in the case, eliminating the need for adjustment. Doing away with threaded or shim-type devices permits straight-through boring of the housing. Thus split-case construction is highly practical, and assembly is greatly simplified. The result is a rigid, highly efficient unit, and one in which production costs have been kept to the minimum.

Learn what New Departure can do for *your* product. Talk with your New Departure sales engineer—*today!*

NOTHING ROLLS LIKE A BALL



NEW DEPARTURE
BALL BEARINGS

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT
Plants also in Meriden, Connecticut, and Sandusky, Ohio
In Canada: McKinnon Industries, Ltd., St. Catharines, Ontario

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KANNAPOLIS, N. C.	P. O. Box 1086	2-3181	**CLEVELAND**	3113 W. 110th St.	Winston 1-5454	**ST. LOUIS**	3001 Washington Blvd.	Franklin 6533
NEW YORK	1775 Broadway	Circle 6-1540	**INDIANAPOLIS**	1357 W. 18th St.	Imperial 4680	**LOS ANGELES**	5035 Gifford Ave.	Logan 8-2301
PHILADELPHIA	850 E. Luzerne St.	Garfield 3-4136	**PITTSBURGH**	Cathedral Mansions	Mayflower 1-8100	**BERKELEY**	1716 Fourth St.	Landscape 6-8750
SYRACUSE	2360 James St.	73-5195	**CHICAGO**	332 So. Mich. Ave.	Wabash 2-5875	**SEATTLE**	5000 First Ave., S.	Lander 5920
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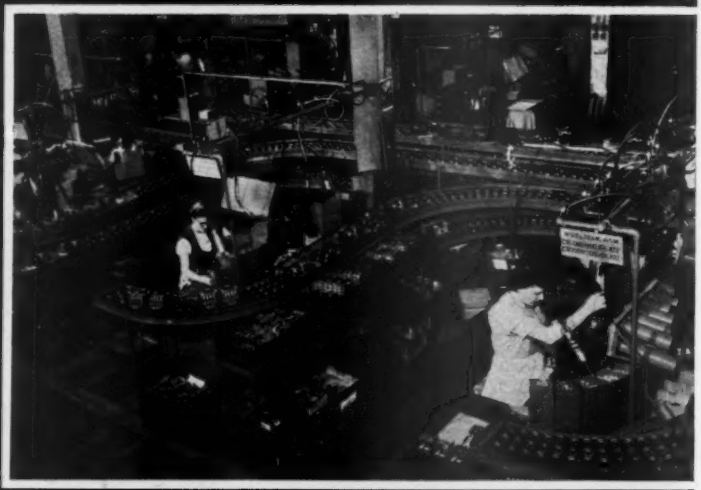
LET'S TALK

cost cutting

Here's the cream of experience from your own field



Cost cutting and improved efficiency have top priority these days. Especially in materials handling. Here, for your own use, is the cream of experience from leaders in your own field . . . in Rapistan Field Reports.

Each is a fast-reading documented case history . . . problem, solution, and result . . . with photographs, diagrams and specifications. Each report gives you a wealth of new ideas and latest methods, including ways to improve the use and efficiency of your present equipment. Three out of four men who receive these reports keep them for reference.

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If you would like to have a specific problem analyzed and get dependable recommendations, a Rapistan engineer will gladly consult with you . . . at no obligation.

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☐ Machine Parts	☐ Canneries
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☐ Meat Packing	☐ Cosmetics
☐ Metal Stamping	☐ Dairy Products
☐ Paint Products	☐ Fabricated Metals
☐ Paper and Publishing	☐ Floor Coverings
☐ Pharmaceuticals	☐ Food Products
☐ Power Tools	☐ Freight Terminals
☐ Sugar Refining	☐ Fruits, Vegetables
☐ Tobacco Products	☐ Furniture
☐ Warehousing	☐ Grain and Feeds
☐ Waste Materials	☐ Grain Milling
☐ Wood Products	☐ Grocery Store

Name_____

Store Name_____

Street_____

City_____ State_____

184

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name of one of the co-authors of that study, John W. McConnell, Professor of Industrial and Labor Relations at the New York State School of Industrial and Labor Relations, Cornell University. Mr. McConnell took an equal part in the preparation of the study with his fellow research director whom you did mention, John J. Corson of McKinsey & Co. Together they have assembled what we believe is a useful and comprehensive picture of the economic realities that confront Americans in their later years.

J. FREDERIC DEWHURST
EXECUTIVE DIRECTOR
THE TWENTIETH CENTURY FUND
NEW YORK, N. Y.

• BUSINESS WEEK regrets the omission of Prof. McConnell's name as co-author of the study, Economic Needs of Older People.

Dear Sir:

As one of your oldest subscribers, I read with interest the article on "the aged" . . . [and] couldn't help but ponder a bit on the blame or credit heaped on "science" for the problem.

I'm under the impression that in the last 50 years or so the life expectancy of a man of 50 has changed very little . . . the great increase in survival being in the infant and childhood groups. That being the case, it hardly takes any pencil pushing to figure that the increase in average life span should have reduced rather than increased the proportion of over-65 population.

I wonder if there aren't other factors that explain the increase in the proportion of the over-65 population. Could perhaps the loss of popularity of the large families of the 1880-1890 period have something to do with it? Would a look at the changing immigration picture throw additional light on the subject?

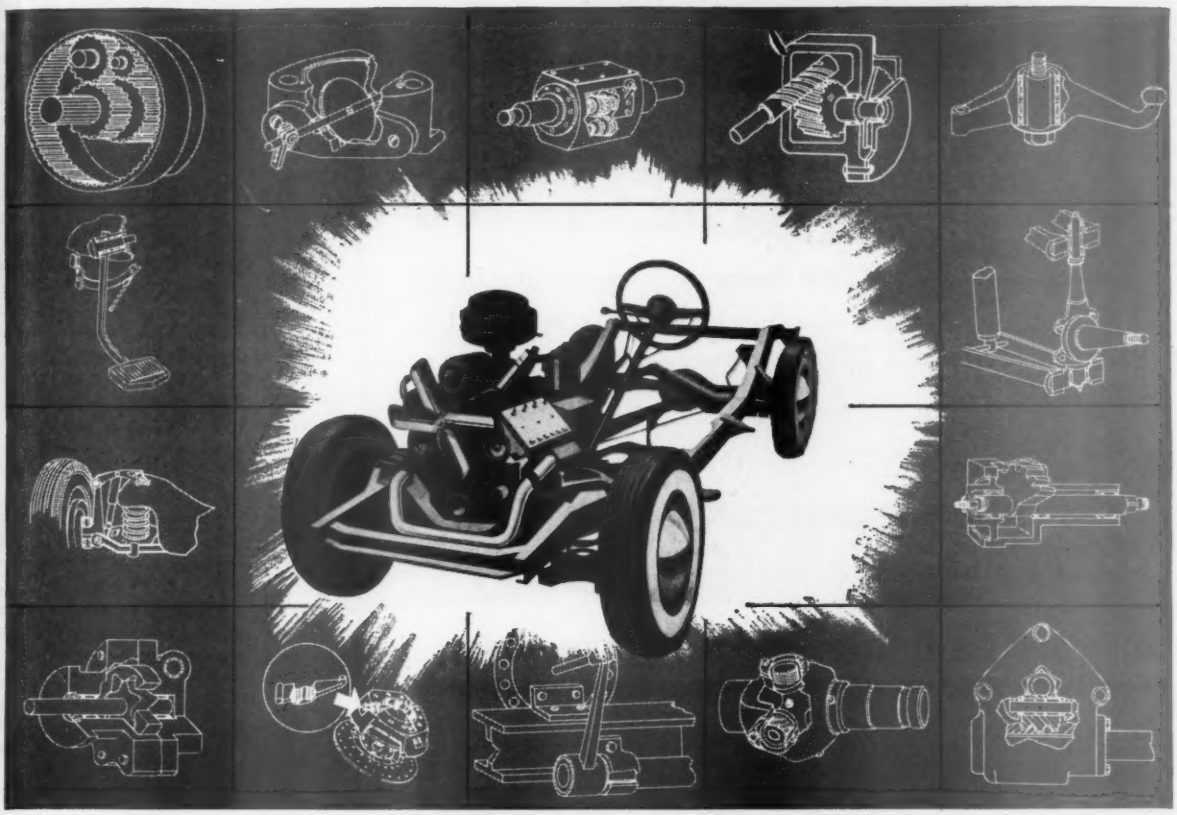
. . . If you have data on the causes of our aging population, I would be most interested in seeing them.

GEORGE B. CAMPBELL
PLANDOME, N. Y.

Plastic Pipe, But Pure!

Dear Sir:

The recent article, Building an Industry Out of Scrap Plastic (BW



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3. Low cost
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In Canada: Dominion Oxygen Company, Division of UNION CARBIDE CANADA LIMITED

—Sep.18'54,p46) contained the inference that most plastic pipe is made of plastic scrap. On p. 50 you state: ". . . if he is making plastic pipe . . . he is a likely customer for the scrap company." Your article implies that the very low selling price of plastic pipe makes such cost-reducing steps as manufacturing the product from scrap rather than virgin plastic a "must" if the manufacturer is to remain in business.

The previous article, Plastic Pipe: Here to Stay, showed that 60% of the plastic pipe produced today is polyethylene, and that polyethylene pipe's major uses have been in the farm and home, primarily for water service. . . .

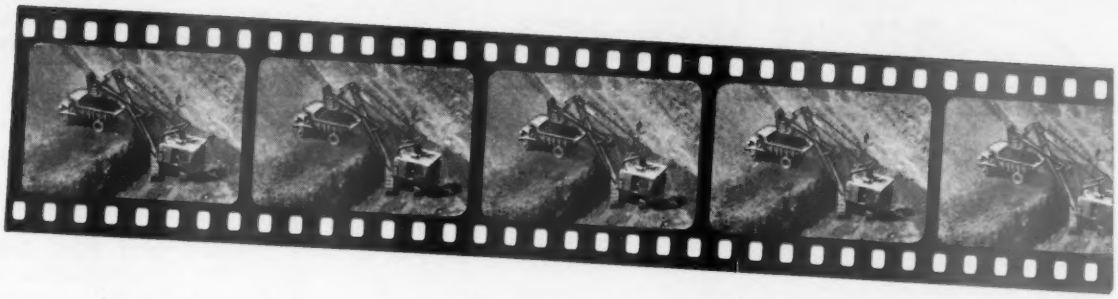
. . . Many plastic pipe manufacturers produce several grades, some of which, made mostly from scrap plastic, are not represented as pure, nontoxic pipe for carrying water intended for human or animal consumption. Insofar as these grades are concerned, your article is quite correct. This type of scrap grade pipe has many uses, one of the largest being drainage lines in coal mines, and in the areas where corrosive wastes must be carried away.

However, the bulk of plastic pipe going into home and farm water service application must . . . be of the nontoxic grade, made from virgin polyethylene plastic, as can be attested to by the pipe producers and distributors . . . as well as the Society of the Plastics Industry, and the health and sanitation officers of the state governments.

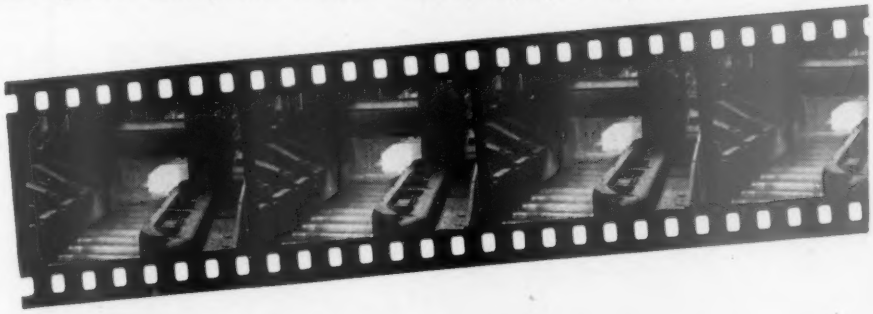
As a producer of polyethylene plastic pipe (producing only the pure, nontoxic grade) this company welcomes articles such as your recent ones about segments of the plastics industry, but feels such inferences as the one described . . . can retard attainment of the true growth potential that exists for what you so aptly describe as "that vigorous youngster—the plastic pipe industry."

STEVENS RUDD
GENERAL MANAGER
CHESFLEX CORP.
PLASTIC PIPE & INDUSTRIAL PRODUCTS
YONKERS, N. Y.

• Scrap plastic is a fast growing segment of the plastic industry. Lower prices are making it possible for many manufacturers to use plastics, who could not afford to use virgin materials. While pipe is a major market for scrap, it does



When raw materials for making steel come from the same sources day after day . . .



When the same furnaces and mills are used to process the same steel products week after week . . .

When the same experienced steelworkers operate the steelmaking facilities and control the steel quality from order to order . . .

Steel users can depend on receiving steel of uniform quality from shipment to shipment.

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Sale Offices: Chicago • Milwaukee • St. Paul • Davenport • St. Louis • Kansas City • Indianapolis • Detroit • New York .

Principal Products: Sheets • Strip • Plates • Structural Shapes • Bars • Tin Mill Products • Rails and Track Accessories • Coal Chemicals

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You will find this new approach to office improvement both stimulating and unique

"Sunshine Styling" is a most unusual brochure which shows you how to achieve a more pleasant (and more productive!) working atmosphere in your office. It presents business furniture which combines nature's most satisfying colors with efficient, space-saving design. This dramatic new full-color guide, together with the expert assistance of your local Steelcase dealer, can make "Sunshine Styling" the most effective step in creating modern, practical offices which encourage your staff to do more good work, easier and faster.

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METAL OFFICE FURNITURE COMPANY
GRAND RAPIDS, MICHIGAN

STEELCASE
BUSINESS EQUIPMENT

not necessarily follow that scrap is the major ingredient of pipe.

TV Tube Troubles

Dear Sir:

I have just finished reading the article . . . "Bogus Parts Plague Industry" (BW—Sep.11'54,p182). . . .

I have heard of the outfits that re-build TV picture tubes, in fact the picture tube in your own set may have been rebuilt before being installed in original process of manufacture. The best of the electronics industry have done this for years.

Now small companies have sprung up across the nation for the sole purpose of restoring old picture tubes to new condition. . . . The trouble, I think, stems from certain repair agencies representing these less expensive tubes to customers as new and charging full list price for them. ! . .

The author should check his facts more carefully. A picture tube "pumped full of some new gas" wouldn't even operate. Picture tubes operate with as perfect a vacuum as is possible in the present state of the art. . . .

R. L. CUMMINS
CAMP HILL, PA.

• Believe it or not (and Reader Cummins obviously doesn't) tubes "pumped full of some new gas" have been found. Even the manufacturers who uncovered this sort of thing are not sure how the tubes work, but they have been known to do so for, at most, two weeks.

Fourth in the Field

Dear Sir:

. . . May we call your attention to . . . the article, Plastic Pipe: Here to Stay (BW—Sep.4'54,p 150).

. . . Granted, it would be impossible for you to list all manufacturers of plastic pipe, nevertheless . . . we would remind you that Triangle ranks at least among the first four fabricators. . . .

J. E. WINICK
DIRECTOR OF SALES
PLASTIC PIPE DIVISION
TRIANGLE CONDUIT & CABLE CO., INC.
NEW BRUNSWICK, N. J.

Letters should be addressed to Readers Report Editor, BUSINESS WEEK, 330 West 42nd Street, New York 36, N. Y.

Bringing 'em back to life

Many an oil well goes dry because it gets wet. Water in the oil-rich sand around the well bore can shut off oil flow just like the closing of an enormous valve. When this happens the wells go dead . . . even though millions of barrels of oil still lie in the ground.

A unique Atlas chemical now provides a simple, effective way to correct this water damage. ATPET 931 injected into the well in a charge of crude oil, disperses the water underground . . . lets oil flow freely once more. This technique* developed by Stanolind Oil and Gas Company has brought back many "dead" wells and has revived others that seemed to be dying.

Working behind the scenes, Atlas products have a hand in many of the things you buy for your home, your car, or your business. The news we're making today and tomorrow can mean good news for you. If we are not working with you now we may well be soon. Atlas Powder Company, Wilmington 99, Delaware.

*Pat. applied for

ATLAS

ATLAS POWDER COMPANY

SORBITOL, EMULSIFIERS, DETERGENTS

POLYESTER RESINS, PAINTS, EXPLOSIVES

Noiseless Air Conditioning Defies Detection by Recording Studio Microphone

This Westinghouse System Doesn't Even Register a Hum on Sensitive Master Recording Microphones.

Noise, mildly distracting to some people, would put Audio-Video Recording Studios out of business. Because even the slightest hum can spoil a master recording—seriously boosting talent and production costs.

Add the unbearable heat of electronics equipment in close quarters; the need for continuous temperature and humidity control to protect film; and you see why noiseless, 24 hour-a-day air conditioning is necessary.

Audio-Video's solution? After investigating the leading makes of air conditioners, they had Broadway Maintenance Corporation install a Westinghouse air conditioning system. The result . . .

Lower Production Costs. High-priced talent and technicians now work hour after hour, under blazing lights . . . thanks to the quiet, relaxed comfort possible with Westinghouse Air Conditioning.

No Summer Shutdowns. Westinghouse Air Conditioning enables processing room technicians to work as many extra hours as necessary . . . when summer heat forces competitors to shut down.

Ideal Temperature And Humidity Control. Twenty-four-hour-a-day heat and moisture control is adding years to the life of stored records, film and other expensive equipments.

No Maintenance Problem. These Westinghouse Air Conditioners have been in operation day and night, for 2½ years, without a service problem.

For a solution to any cooling problems you may have, call your local Westinghouse Air Conditioning Distributor. He's listed in the Yellow Pages of your phone book. Or write to Westinghouse Electric Corporation, Dept. BW1023, Air Conditioning Division, Hyde Park, Boston 36, Mass. No obligation, of course.

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YOU CAN BE SURE . . . IF IT'S Westinghouse

J-60408

BUSINESS OUTLOOK

BUSINESS WEEK
OCT. 23, 1954

Business, far from stagnating, has braced in the face of hard knocks.

Important forces were running downhill right through the third quarter—notably spending by the federal government and by business.

Between them, these cuts have placed a heavy drag on activity.

Yet other parts of the economy have come through to compensate, according to estimates just published by the Council of Economic Advisers.

Business has economized mainly on inventory. The cut in such spending has held pretty consistently at a rate of $4-billion annually.

Less conspicuous, but almost as important, has been the **downturn in business outlays on production equipment,** now running more than $2-billion below the average level of 1953.

Uncle Sam's spending, which was above $60-billion annually in the summer of 1953, **now is below $50-billion.** Despite all the talk of a turn, it went down again in 1954's third quarter (although the rate of decline clearly was lessening, and the low point by now probably is behind us).

Purchases of goods and services, under the circumstances, have done very well to stabilize this year.

You see this stability in the gross national product, which adds up the value of all goods produced and services rendered: The first quarter's total was $355.8-billion; it edged up to **$356-billion** in the second; and there apparently was no change in the third.

Helping bring this stability have been gains so far this year of about $4-billion in **consumer purchases,** $2-billion in **private construction** outlays, and $1-billion **state and local expenditures.**

—•—

Personal spending has been subject to conflicting forces: lower wage earnings offset by reduced taxes.

What it came out to was **a small gain in spendable income.**

People spent the windfall, and they also saved less. The result was spending for consumption at an annual rate **of $234-billion** in 1954's third quarter, up from **$231-billion** a year earlier.

How people have been spending is no mystery, for the pattern has been emerging over a period of many months: **slightly less for durable goods,** a little more for **nondurables,** substantially **more for services.**

Actual spending for goods—both **durable** and nondurable—is almost exactly what it was a year ago.

The added outlays thus went for **services,** where higher prices doubtless soaked up most of the increase.

Personal saving (always a slightly fuzzy figure, if only because it includes repayments on debts as well as cash squirreled away) apparently was at an annual rate of **$18½-billion** in the third quarter. That's down about $3-billion from the **first quarter** and more than **$1-billion** behind the second quarter rate.

Home building is making an even bigger contribution to business activity than anyone had dared predict a short time ago.

The point is that the second quarter had been very vigorous on the residential front. A general suspicion prevailed that builders were jumping the gun on relaxation of government financing aids.

Perhaps that has something to do with it. But **homes have sold well enough so that no reaction has set in.**

Homes started in the third quarter apparently totaled 337,000.

Not only does that top the second quarter's estimate by about 4,000, but September was the third quarter's high month at 114,000 (second only to June's 116,500 for the year to date and the best September since 1950).

As it takes some months from the starting date to finish a dwelling unit, **these starts assure active building well into the winter.**

Make allowance for seasonal trends, and **September activity in the housing field takes on added luster.** The 111,900 privately financed homes started during the month amount of 1,232,000 at a seasonally adjusted annual rate. No month since January, 1951, has been so high.

—•—

Manufacturing activity held up exceedingly well in September considering a drop in autos about 30% deeper than the normal seasonal.

Production of nondurable goods, in fact, moved slightly higher and almost equaled a year ago, the Federal Reserve Board reports. **Output of durables remained at the August level** though 8% under a year earlier.

On balance, the FRB index of production remained at 124.

Standing out among the Federal Reserve indexes is that for **chemicals.** This classification now is half again as high as the 1947-49 average, and it has pulled several points ahead of last year.

Machinery's comeback is being led by **electrical equipment.** After dipping from an index above 200 to a low of 163, electrical machinery output had rallied to 185 in September (BW—Oct.9'54,p29).

The recovery in other machinery, however, so far lacks momentum.

Automobiles drag down the index on hardgoods for the consumer market. However, the rest of the figures stack up pretty well when autos are omitted from the reckoning.

Major household items in September were a shade below August after seasonal adjustment. Yet they held above a year earlier.

And other consumer durables bettered their August showing (even though they continue to run somewhat below their 1953 levels).

More homes to furnish this year than last hold high promise for appliance and furniture output (quite aside from the improvement in the inventory position and the buoying influence of holiday sales).

Housing starts not only are high, but the rate of gain over a year ago has been expanding steadily; by September starts were 20% ahead.

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Keyboard beauty for "Music's Most Glorious Voice" since 1936, thanks to PLASKON® Urea

Until 1936, when the Hammond Organ Company started using PLASKON Urea, it had been searching for a material that would make "ivory" organ keys extremely durable and attractive to the eye. Keys and other parts, molded of PLASKON Urea have a rich, glowing lustre, and are highly resistant to scratching, chipping and abrasion.

Hammond has built a great deal more than glorious tone into its instruments. It has built prestige and sales-appeal so great that it is the recognized leader of its field. And PLASKON Urea helps to create the eye-appeal that aids sales.

In hundreds of other products too, where surface beauty, durability and easy fabrication are essential requirements, PLASKON Products have proved time and again to be the ideal choice. And when it comes to color—PLASKON Urea beats them all! Over 12,000 shades are available to satisfy the most exacting demands.

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The gift that heightens a business friendship

FOUR ROSES

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A GIFT of Four Roses—to express a warm business relationship—has become a welcome custom with many a firm.

And this year, it's even more appropriate than ever.

The same fine whiskey—America's holiday favorite—in a Special Gift Bottle.

For the same fine Four Roses is presented in a Special Gift Bottle—adding a new richness and dignity to the gift that truly reflects your company's position and prestige.

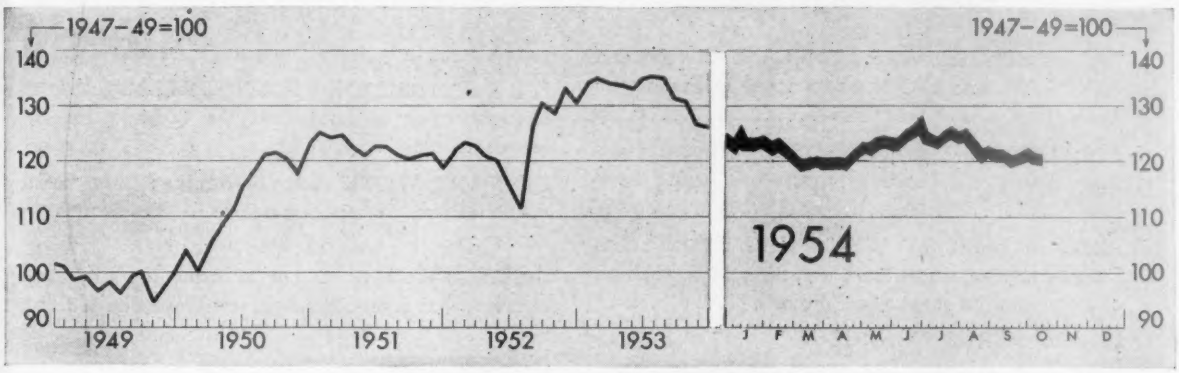
For a "preview" of Four Roses in the Special Gift Bottle, call your local Frankfort representative or write to Frankfort Distillers Company, New York, N. Y.

Special Gift Bottle and carton at no extra charge

Also available in the regular Four Roses bottle.

FRANKFORT DISTILLERS CO., N.Y.C. BLENDED WHISKEY. 86.8 PROOF. 60% GRAIN NEUTRAL SPIRITS.

FIGURES OF THE WEEK



	§ Latest Week	Preceding Week	Month Ago	Year Ago	1946 Average
Business Week Index (above)	*121.1	†121.3	121.2	131.3	91.6
PRODUCTION					
Steel ingot production (thousands of tons)	1,755	†1,735	1,637	2,142	1,281
Production of automobiles and trucks	61,286	†81,610	74,026	152,743	62,880
Engineering const. awards (Eng. News-Rec. 4-week daily av. in thousands)	$42,058	$42,794	$54,117	$46,287	$17,083
Electric power output (millions of kilowatt-hours)	9,117	9,193	9,074	8,265	4,238
Crude oil and condensate production (daily av., thousands of bbls.)	6,186	6,152	6,196	6,311	4,751
Bituminous coal production (daily average, thousands of tons)	1,375	1,332	1,329	1,542	1,745
Paperboard production (tons)	252,442	247,919	244,607	261,213	167,269
TRADE					
Carloadings: manufactures, misc., and l.c.l. (daily av., thousands of cars)	69	71	68	78	82
Carloadings: raw materials (daily av., thousands of cars)	48	50	48	56	53
Department store sales (change from same week of preceding year)	–2%	–2%	–5%	–5%	+30%
Business failures (Dun and Bradstreet, number)	152	230	195	169	22
PRICES					
Spot commodities, daily index (Moody's Dec. 31, 1931 = 100)	402.6	403.7	407.5	392.9	311.9
Industrial raw materials, daily index (U. S. BLS, 1947-49 = 100)	88.5	89.3	87.3	80.6	††73.2
Foodstuffs, daily index (U. S. BLS, 1947-49 = 100)	92.2	92.8	95.4	94.6	††75.4
Print cloth (spot and nearby, yd.)	19.0¢	19.1¢	19.0¢	20.4¢	17.5¢
Finished steel, index (U. S. BLS, 1947-49 = 100)	144.7	144.7	144.6	141.5	††76.4
Scrap steel composite (Iron Age, ton)	$33.00	$33.00	$30.17	$32.83	$20.27
Copper (electrolytic, Connecticut Valley, E&MJ, lb.)	30.000¢	30.000¢	30.000¢	29.775¢	14.045¢
Wheat (No. 2, hard and dark hard winter, Kansas City, bu.)	$2.42	$2.39	$2.39	$2.27	$1.97
Cotton, daily price (middling, ten designated markets, lb.)	34.28¢	34.44¢	34.61¢	32.70¢	30.56¢
Wool tops (Boston, lb.)	$2.23	$2.23	$2.23	$2.12	$1.51
FINANCE					
90 stocks, price index (Standard & Poor's)	253.3	257.8	251.8	191.6	135.7
Medium grade corporate bond yield (Baa issues, Moody's)	3.46%	3.47%	3.48%	3.82%	3.05%
Prime commercial paper, 4-to-6 months, N. Y. City (prevailing rate)	1½–1⅝%	1½–1⅝%	1½–1⅝%	2½%	¾-1%
BANKING (Millions of dollars)					
Demand deposits adjusted, reporting member banks	54,651	54,276	54,490	53,307	††45,820
Total loans and investments, reporting member banks	84,686	84,803	82,440	78,236	††71,916
Commercial and agricultural loans, reporting member banks	21,190	21,102	21,023	23,201	††9,299
U. S. gov't guaranteed obligations held, reporting member banks	37,352	37,614	35,790	31,319	††49,879
Total federal reserve credit outstanding	25,267	25,501	25,020	26,322	23,883

MONTHLY FIGURES OF THE WEEK		Latest Month	Preceding Month	Year Ago	1946 Average
Housing starts (in thousands)	Sept	114.0	111.0	95.1	55.9
Bank debits (in millions)	Sept	$149,907	$151,510	$147,699	††$85,577
Exports (in millions)	Aug	$1,149	$1,291	$1,253	$812
Imports (in millions)	Aug	$825	$821	$814	$412

* *Preliminary, week ended Oct. 16, 1954.* † *Revised.* †† *Estimate.* § *Date for "Latest Week" on each series on request.*

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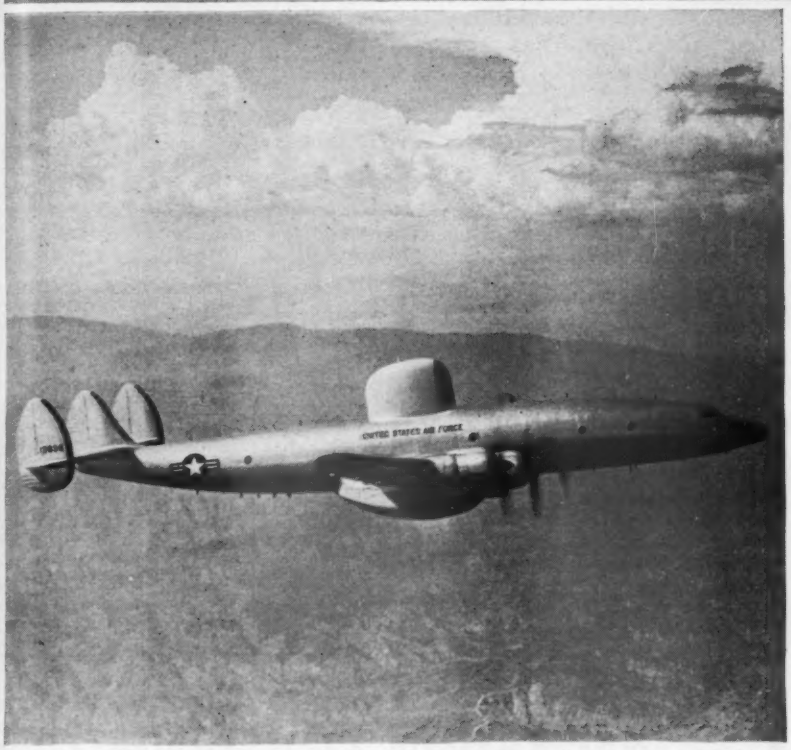
DIE CASTINGS GO TO WORK. The industry has grown since its shift to larger, more useful items.....p. 102

TITANIUM BOOST. New production methods overcome some limitations, but price remains high.....p. 108

NEW BRIDGE FROM LAB TO PLANT. Michigan's Engineering College sets up program to speed research results to industry....p. 110

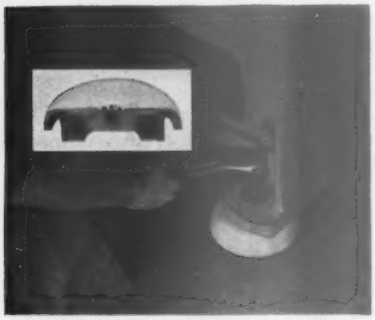
NEW PRODUCTS .....p. 114

LOOK WHAT RUBBER PRODUCTS MADE WITH NEOPRENE ARE DOING



TOUGH NEOPRENE COATING on leading edges of the reinforced plastic radomes on USAF and Navy radar picket planes gives protection against erosion from rain and snow. Neoprene wins its wings with lasting resistance to abrasion, weathering and temperature extremes. Appropriately nicknamed "pregnant goose," a Super Constellation such as this is one of the vital links in the country's radar defense warning system.

NEW HOUSEHOLD GLOVES of neoprene stand up to acids, oils, greases, soaps and cleaning fluids. Textured palms and fingers give a sure grip, while suede-flock linings make slipping on and off easy.



UNIQUE LEVELING MOUNT for machinery isolates vibration with a resilient, oil-resistant "mushroom" of neoprene. Novel design of mount prevents "walking" of machinery, with no need for floor attachment.

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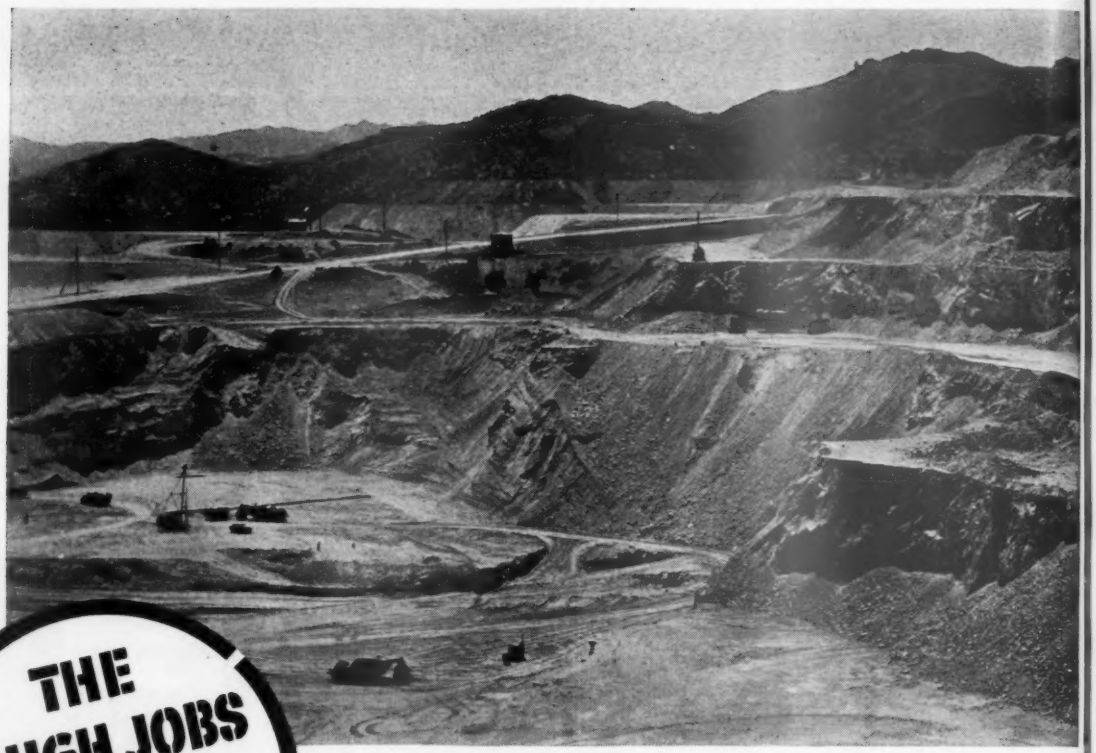

THE TOUGH JOBS GO TO TEXACO

INSPIRATION CONSOLIDATED COPPER CO.,

Inspiration, Arizona, is a big producer — with a big array of equipment to maintain. For nearly 20 years now, Inspiration has been lubricating this equipment with Texaco. As a matter of fact . . .

for over 20 years, more copper ore in the U. S. has been mined with Texaco-lubricated equipment than with any other.

It's easy to see why. Texaco-lubricated equipment stays on the job longer . . . needs less repair work and fewer new parts. Result: *up* goes production . . . *down* go unit costs.

* * * * * *

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TEXACO

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TEXACO

BUSINESS WEEK

NUMBER 1312

OCT. 23, 1954

Labor Merger: What It Means

● **AFL and CIO are drafting a constitution. They hope for a vote by the two federations by the end of 1955.**

● **The aim: a loose alliance with a louder voice in political and legislative affairs.**

● **For companies: bargaining much as usual—but it could be tougher.**

Suddenly, chances are good for a single labor federation of 15-million members by the end of 1955. Three-man teams from the AFL (headed by Pres. George Meany) and the CIO (headed by Pres. Walter Reuther) started work this week on a new constitution that would give their 145 unions one stentorian political voice.

Last weekend's decision by unity committees of two groups—the decision to join forces as soon as details can be settled—didn't come about because of any new cure-all. The committee members simply believe merger will be worth all the trouble it will take.

It's a sign that union leaders are putting the importance of healing the 18-year rift in organized labor ahead of their jealously guarded personal power. The combination of new leaders and outside political pressures made the time ripe for the healing process. If merger isn't achieved under the present impetus, it is probably out of the question for a long time.

• **What It Would Do**—Uniting AFL and CIO isn't designed to create a powerful new bargaining agent, but rather to ally unions in a stronger political lobby. Unions will be asked to combine in what Meany and Reuther have labeled "a single trade union center." Their individual activities will go on as before.

This means that the businessman won't suddenly be faced with a new and more potent army of negotiators at the bargaining table. However, it's important for industry to remember that the most intense inter-union rivalry to get the best bargaining deal has always been within—not between—AFL and CIO.

Up to now, a union in one group hasn't paid much attention to what its opposite number was doing in the other organization, unless they happened to contend for the same jurisdiction. Get them all under the same tent and the result may be much tougher bargaining.

Political officeholders will certainly be under heavier fire from a merged labor force. They'll be talked to more sternly, have more campaign money and united voting support dangled before their eyes. They'll have no chance to play one federation against the other.

• **The Plan**—By the end of next year, the draft teams are scheduled to present a constitution, which is to be submitted to separate yearend conventions of the CIO and AFL. This constitution will specify how parallel offices and staffs shall be combined, how jurisdictional rivalries shall be settled.

If the constitution gets to a vote, acceptance is practically assured. However, the unity program will be sniped at continually by outsiders such as John L. Lewis, who never misses a chance to ridicule the program, and by more influential insiders such as Dave Beck of the AFL Teamsters and David McDonald of the CIO Steelworkers.

• **Good Fellows**—The policy decision for merger is the result of two years of give-and-take among members of the 10-man unity teams. In the two years, the two teams have come a long way in achieving cordial relations.

At first, the leaders of each side dealt warily with the other side. Now, merger could be accomplished at the drop of a hat if it were only a social combination of union leaders rather than an attempt to integrate workaday problems of the two associations. Conferences of the two teams now resemble the hearty fellowship of a chamber of commerce luncheon.

• **Repartee**—At last weekend's meeting in the Mayflower Hotel, Washington, the committee members—presidents of most of the biggest unions—mixed in the cocktail hour in a way that would delight any hostess. They made a point of seeking out members of the opposite team. Such direct rivals as David Dubinsky of AFL's International Ladies' Garment Workers and Jacob Potofsky of CIO's Amalgamated Clothing Workers entwined their arms in poses for news photographers.

Repartee was free and easy, good-natured. CIO Pres. Reuther greeted Pres. William Doherty of the AFL Letter Carriers with a grin and a "How's Postmaster Gen. Summerfield?" (Summerfield got the federal pay raise vetoed by Eisenhower.) Doherty responded, "And how's Charlie Wilson?" Wilson's "bird dog" remark was a favorite topical gag of the session.

The members chuckled over John L. Lewis' latest blast about the unity conference, titled "That Smelly Old Peace Pipe Again." Lewis was snorting about "the umpteenth powwow on the subject of labor unity" and predicting that "Sliding Scale Walter" Reuther would be reduced to mere presidency of the CIO Auto Workers.

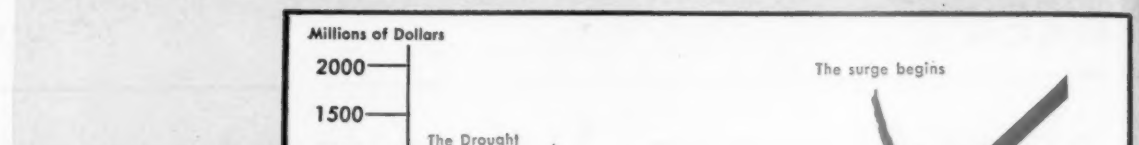
• **Lewis Bugbear**—Lewis used to stir up defensive reactions from the unity leaders. Now the leaders are more self-assured; they can afford to smile.

At the same time, they recognize that Lewis, through his influence within their groups, can still hurt the cause of unity. Beck and McDonald both have informal working alliances with Lewis, as a maneuver to challenge Meany and Reuther. They have demanded that Lewis be brought into the merger, with other independent unions, but the unity committees have so far refused. Beck and McDonald are powerful enough to stall unity, if not kill it.

• **New Era**—The new sentiment between AFL and CIO was demonstrated during jokes about which group should pick up the luncheon check at the Mayflower. Someone suggested that James Carey, CIO secretary-treasurer, would probably get it because the waiter was AFL-organized. "Oh, no," said the waiter, "in this town we're organized by the CIO." The waiter's earnest explanation was greeted by a burst of laughter from both groups.

At one time this was no laughing matter.

Defense Contracts: They're Flowing Again



Here's Where the Work Is Going

(In Thousands of Dollars)

	3rd Qtr. 1953	4th Qtr. 1953	1st Qtr. 1954	2nd Qtr. 1954	3rd Qtr. 1954*
Aircraft	56,966	77,544	150,283	1,030,327	1,250,000
Ships	1,016	8,646	1,674	424	292,000
Vehicles	—15,117	—140	8,449	15,576	266,000
Weapons	—2,172	—114	1,800	—424	2,000
Ammunition	—57,617	—160,505	10,146	53,039	—75,000
Guided Missiles	26,909	9,634	27,345	113,959	44,000
Electronics	46,562	41,910	32,818	118,081	83,000
Production Equipment	10,312	—14,696	20,855	77,733	51,000
Other Major Procurement	56,371	27,398	68,140	65,470	45,500

Data: Office of Secy. of Defense. *BW estimate —Cancellation

BUSINESS WEEK

Air Force Leads in Splurge

The long drought in military orders, which began almost a year ago, is over. Within the past few weeks—as the figures tabulated above indicate—the Air Force, Army, and Navy have begun to pour out contracts; the Air Force share alone exceeds $1.2-billion.

This stream of new orders will be kept flowing. At least another billion or two will be forthcoming in the next couple of months, as the Pentagon cranks up to place a total of $16-billion to $18-billion in new contracts before next July 1. The next go-round will probably include a big chunk of new Air Force contracts for engines.

• **Into the Air**—There's no doubt that it's aircraft and related industries that are getting the big new shot-in-the-arm. While the Air Force didn't reveal dollar totals of individual contracts, the major portion of the $1.2-billion in new orders is going to two companies.

• Consolidated Vultee Aircraft Corp.—about $500-million, mostly for initial production of the new supersonic delta-wing B-58 bomber.

• Lockheed Aircraft Corp.—probably $300-million or so, mainly for its new lightweight F-104 fighter.

Boeing Airplane Co. is getting additional orders and is stepping up production of the B-52 bomber, just rolling off production lines. North American Aviation is getting another round of orders for the F-100 fighter, supersonic successor to the F-86 Sabrejet.

• **Ebb and Flood**—The chart above tells the story of what happened since Defense Secy. Charles Wilson began his new look at needs, and defense contracting ground to a halt last year. In the final quarter of 1953, cancellations actually topped new orders. The pumping out of the big contracts got going

in earnest in August and September this year. The third-quarter estimated total of $1.7-billion new orders exceeded the previous quarter's $1.4-billion, although the April to June quarter is normally the biggest for contracting.

So far, the new orders show no particular response to political demands to fight unemployment by placing contracts in distressed areas. About the only one fitting that category is a $36.4-million contract for Nike guided missiles for Western Electric at Charlotte, N. C.

• **Good News**—The big aircraft orders will help cure the bad case of jitters the industry was getting from the long hold-down; the Air Force order schedule goes far to determine industry output for some years ahead. The orders of the past few weeks for the big delta-wing B-58, for example, won't get it into the air until about mid-1958—if all goes well. It won't really be our big bomber punch for at least a year or two after that.

• **Other Lines**—The opening of the defense faucet also released big new orders for jet and turboprop engines. A good guess is that 75% of Air Force engine money is going to these types; so far this year jet engine contracts total $162-million.

Guided missiles are still weapons of the future as far as the big money is concerned—but procurement is rising fast. During the next year, deliveries will step up to around $500-million a year, and by January, 1958, you can look for a $1-billion-a-year rate. Soundest military thinking is completely committed to missiles—some of them carrying A-bombs and H-bombs—as the next big family of weapons.

Vehicles and the auto industry were hard hit by cessation of Korean hostilities. Last month Army Ordnance released contracts for some $266-million for tanks, trucks, and cannon. The Army has already said few more are to be expected, almost none in fiscal 1956.

Ammunition procurement is even more bleak. Contracting in the current fiscal year is likely to be less than half the previous year's total.

Electronics sales to the military are actually four or five times the amount shown under that heading in Pentagon breakdowns. Reason is that much electronic stuff for aircraft, tanks, ships is counted in those categories.

Textiles, which suffered during the last two years, are due for a large slice of military business soon.

The Army announced this week in Boston the award of eight contracts totaling $12-million for green uniform cloth—and more are to come.

Air Force and Navy both plan orders for uniform fabrics; these will probably boost the total another $10-million in the next year.

Piled-Up Desk at White House

Pres. Eisenhower came back from vacation to a backlog of work, just like any other executive. Here's a summary of decisions he must make soon.

Like many a top executive just back from golfing and fishing, Pres. Eisenhower must have wondered this week if a vacation is worthwhile. Back in Washington after eight weeks in Colorado, he discovered he had more work than when he went away.

In a week crowded with White House conferences, top aides briefed him on dozens of major decisions that he must make in the next two months. These touch on the course of business, on the next round of tax reforms, on foreign affairs, on our military preparedness, on changes in labor laws, and on reorganization of the executive branch of the government.

These issues were the real substance of Eisenhower's first week back at the grind of governing 163-million people. Yet they were almost overlooked because he also took on an additional job—one he didn't have when he closed his White House desk in August. That was the job of political campaigning.

• **Change of Heart**—When the President went vacationing, he was still convinced that he could stay on the political sidelines, that the Republican record was good enough to win next month's Congressional election without his active intervention.

This week he broke off his office conferences long enough to go campaigning in Connecticut, New York, and Pennsylvania, with a special nod to Clifford Case, Republican candidate for the Senate in New Jersey.. He kept these trips short—and he made them only after receiving a round of gloomy predictions from Republican leaders.

• **Decisions to Make**—His campaign trips grabbed the headlines, but when the shooting is over a week from Tuesday—no matter which party wins control of Congress—Eisenhower must be ready to make up his mind about the problems that make his job the toughest in the world. Here's a quick look at some of them:

Foreign affairs. Eisenhower began his first week back with an hour-long breakfast with Secy. of State John Foster Dulles. The next day Dulles was off to Europe to defend our arms policy. Dulles will also sit in on talks between the heads of the French and West German governments on the fate of the Saar and will try to persuade NATO's Council of Ministers to accept full membership for West Germany.

Dulles also had word direct from Formosa, where Assistant Secy. of State Walter Robertson had just persuaded Chiang Kai-shek to stop bombing the Chinese mainland. The Administration doesn't want our plans for economic aid to Southeast Asia to be linked—in Asian minds—to an active military assault on Red China from Formosa.

Budget. From now until late December, Eisenhower will be called on to make frequent decisions on spending for fiscal 1956, which starts next July 1. They'll reach him in the form of recommendations from his budget director, Rowland R. Hughes.

The pressure is for further reductions all along the line, with the military again scheduled for the biggest slash.

Other spending decisions involve the presently curtailed dam-building programs, military public works, and the amount of federal funds for shipbuilding subsidies, airports, and hospitals.

Business. Gabriel Hauge, White House staff administrator for economic affairs, saw Eisenhower Monday morning, just ahead of Radford.

Hauge probably told the President pretty much what Arthur Burns, chairman of the Council of Economic Advisers, told the Economic Club of Detroit later the same day: The economy is doing nicely, with every likelihood of shortly resuming its normal growth.

Tax reform. The decision has already been made to liberalize the depreciation rules on industrial plant (BW—Aug.7'54,p48)—the question is how far to go.

Eisenhower will also have to decide whether to ask Congress to lower the present 25% tax on capital gains—a politically touchy subject.

Labor policies. A dispute between Secy. of Commerce Sinclair Weeks and Secy. of Labor James P. Mitchell will have to be settled.

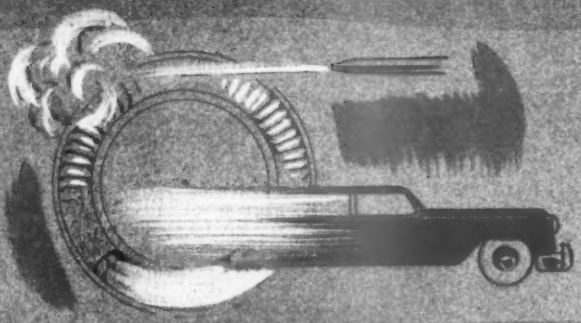
Mitchell wants to raise the minimum wage from 75¢ to at least $1 and to extend coverage to millions of additional workers. He'll also recommend changes in Taft-Hartley. Some of his ideas will be opposed by Weeks, who thinks they're too pro-labor.

Appointments. The pressure of finding men to fill key jobs never lets up on a President. Eisenhower has a Supreme Court post to fill and must select a Comptroller General to take the place of Lindsay C. Warren, who resigned months ago. He even has an Assistant Secy. of Labor to name—if Mitchell can come up with a candidate acceptable to the labor organizations.

Technology Expects to Delive

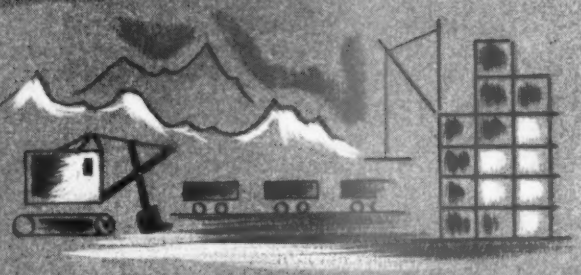
. . . Soon

. . . For human and private needs



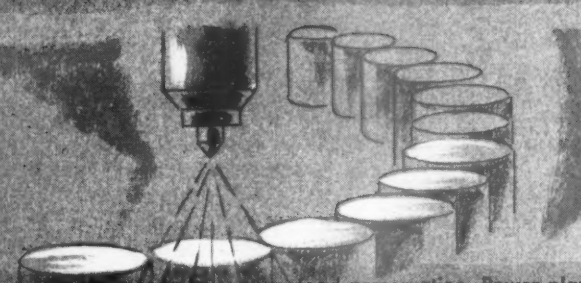
Gas turbine automobile. Starts easily in the winter, uses cheap fuel, needs only one sparkplug. Industry has already built prototype.

. . . For industry's products and processes



Direct reduction of concentrated iron ore to steel, by a process cheaper than any yet publicized. Research now going on behind locked doors.

. . . For energy needs



Atomic energy for power, food preservation. Power plant now in construction near Pittsburgh. AEC expects other semi-experimental plants soon.

It All Means Change—for People

This set of drawings is a picture of technological progress—progress not merely envisioned, but already beginning to grow from the state of knowledge in 1954. It is also a picture of economic strength.

Almost every important advance in technology leads to new capital expenditures by industry. It leads, either directly or indirectly, to more jobs and higher standards of living. Continuing scientific and technical discoveries make up one of the main driving forces behind the U. S. economy.

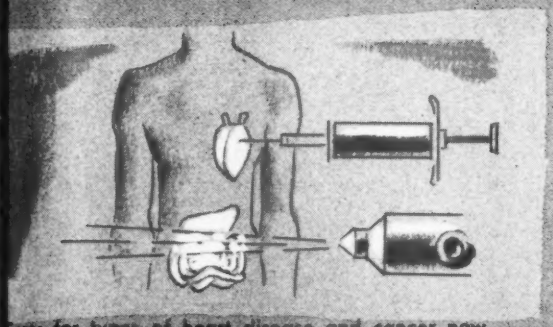
This week, BUSINESS WEEK reporters across the country set out to find how powerful that driving force is. They asked this question of industrial and research leaders in a broad cross-section of business and science: "What technical advance are you waiting for—an advance definitely expected within the next five years?"

The leaders weren't content to stay within a boundary of five years. They ranged ahead 15, sometimes 20 years. And the things they saw there, they insisted, were not visions, but cold probabilities—ranging from the locomotive that runs on sun power to clothing that's cheap enough to be thrown away after it has been worn just once.

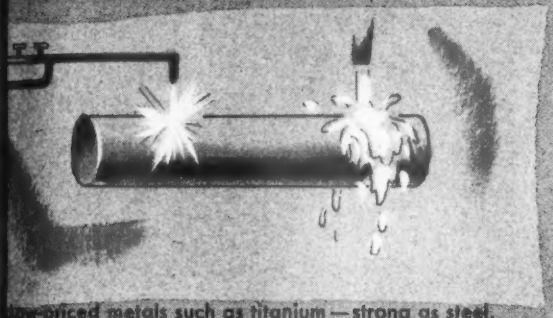
• **Sample**—As the sketches above show, businessmen in Detroit see the gas turbine automobile coming soon, though you hear strong bearish argu-

These Things, and More . . .

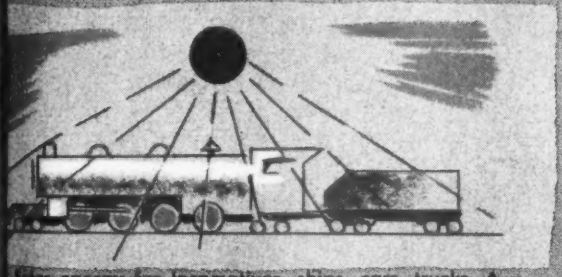
. . . In a Dozen Years



Cures for types of heart disease and cancer now considered incurable. Earlier diagnosis of cancer, so it can be checked sooner and more easily.

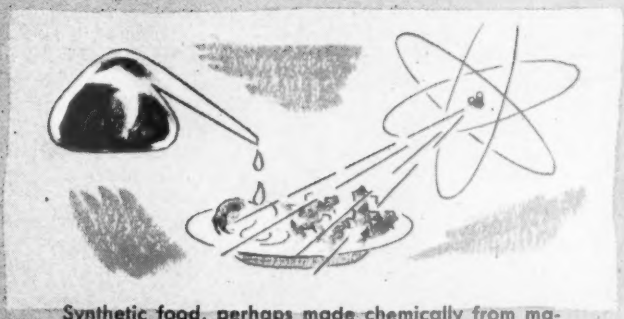


Low-priced metals such as titanium—strong as steel, one-third lighter, more corrosion resistant. Ore-to-metal process now is prohibitively expensive.

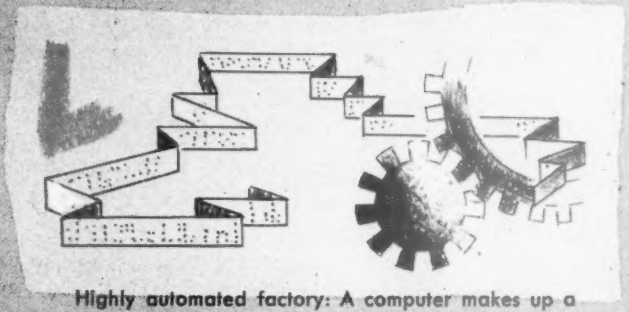


Solar energy for locomotives, ships, cars, trucks. A solar energy converter can now be made as efficient as an internal combustion engine.

. . . In the 1970s



Synthetic food, perhaps made chemically from materials now considered wastes. Food cooked fast by a high-frequency electronic pulse.



Highly automated factory: A computer makes up a "brain" tape, which feeds into a production machine, tells it what to do. MIT now has a lab model.

Photosynthesis—the process by which plants use light to make food. Science hopes to discover how the process works, use it for human needs.

©BUSINESS WEEK

and Business Alike

ments on that score. In Pittsburgh, they see a way to get steel directly from concentrated iron ore. Further along, metals men see a cheap way to produce titanium and other wonder metals.

Medical researchers expect to develop life-saving treatments for several types of heart trouble and cancer within the next decade. A new drug to relieve hypertension—one cause of heart trouble—has already come on the scene. Cancer researchers, meanwhile, are beginning to penetrate the mystery of the disease's origin and nature. They hope to progress from there into research on new cures.

Everywhere you listen, you hear excited talk of developments in the seedling stage. You hear of food preserved by atomic radiation instead of freezing. Plastic dies instead of steel ones for metal fabricating. High-frequency sound waves cleaning sheet steel.

• **Knots**—You also hear talk—frankly visionary, right now—of a fast, inexpensive way to reproduce knowledge.

As technology advances, it becomes harder to push further. A young scientist entering a field must learn all there is to know of that field before he can begin peering beyond its frontiers. Today, he has vastly more to learn than would have been the case 15 or 20 years ago.

The need is for a device to help the scientist gather his knowledge. This device would be a sort of memory unit. If the scientist wanted to know everything about, say, an electric light filament, he would manipulate the mem-

ory's controls. The memory would search its file of 50,000 references to electric lights and pull out for the scientist perhaps 400 references on filaments.

This might solve the scientist's problem. But it would not solve the parallel problem of the businessman. As technology advances, new machines of ever-increasing complexity are delivered to the industrial plant. New skills are needed to run these machines and to maintain them.

You can get an idea of what's coming when you look at some of the electronic equipment that's here already. One aircraft manufacturer grumbles that the equipment is costly to begin with—and the initial cost is only the beginning. The same amount of money is paid out over and over again during the life of the equipment, just for maintenance.

• **Shifting Scene**—But such problems as these will not hold technology back. It's bound to roll forward. Here is a quick look at some spearheads of the advance.

I. Transportation

Start with your car. Take the tires. In Akron, the goal—perhaps 10 years away—is a 100,000-mile tire that's good, roughly, for the life of the car. This hope is based on the marked progress that has been made in synthetic rubber in recent years.

Take the headlights. A new headlight will appear on cars—probably by the middle of next year. It will make night driving a lot easier. The further-off goal is a light 10 times as powerful, but with no glare. The approach: polarization.

Take cornering ability. The goal here is toward lower and lower cars that can take curves with the ease of today's racing cars, yet won't sacrifice the family-type ride.

Take appearance. Some auto designers think the sliding door is not far away. And the search is on for stronger glass—glass with better visibility, and structural strength great enough to support the roof of the car. The windshield wiper is an antique and has to go. Perhaps the answer is in a glass that repels dampness.

Take roads. Away off in the future, some transportation men see miles of safe, high-speed, single-lane highways in which the cars' wheels travel in shallow concrete channels. Once the motorist is on the road, his steering is controlled by the channels. His speed and braking are controlled also, probably from a central station that governs all cars electronically.

Closer at hand is the possibility that autos will travel from city to city on flatcar trains. Each track could carry several times as many cars per hour as a double-lane highway does now.

II. Production

Here you find some bold new developments close at hand. One is chem-milling—chemical etching or sculpturing of metals instead of using the conventional milling machine. Right now, a pilot plant near Los Angeles is milling aluminum with a chemical etch.

Chem-milling already is yielding cheaper, lighter parts; closer tolerances. The equipment needed for chem-milling is cheaper—$30,000, against some $200,000 for a single milling machine.

• **Oil**—In the Texas oilfields a new kind of drill is being tested now. It can get to oil in areas where hard rock had always prevented penetration. It should be ready next year.

Electronics in the oil industry may make it unnecessary for big crews to set up bulky superstructures. Perhaps in 10 years, all the drilling equipment will fit onto a truck. At the site, just six men will be needed to operate it.

• **Electronics**—In the electronics industry, most men give the vacuum tube just a few more years. Then transistors will take over. One executive talks about a 50¢ transistor with an indefinite lifespan. He thinks it will be here within five years.

Electronics experts also talk of specialized computers. The future of computers, big or small, is thought to lie in the direction of better adaptability. The computer was first developed as a tool for scientists. Now, computer manufacturers are working toward types designed for specific jobs in industry.

For instance, likely developments in the near future are a desk-size computer for offices, a computer to control machine tool operations, others to schedule production. One manufacturer is developing a computer that will work out utility companies' power distribution problems.

• **Metals**—In metals production, the talk everywhere is super-alloys. The aircraft industry is using these new metals right now, for nothing else will stand up so well under the terrific heat of a jet engine.

The most promising of the new metals is titanium. It's used sparingly now, for it's hard to work and costs a minimum of $5 a lb. Within five years, the labs expect to change this. Afterward, titanium will probably move into shipbuilding—because of its lightness and resistance to corrosion; and into supersonic flight—because of its strength at high temperatures.

III. Food and Energy

Chemical engineers, meanwhile, are worried about land. In time, the land available today may become too expensive to use for growing certain basic food and clothing crops, and for raising forests for the nation's shelter needs.

One answer lies in synthetic substitutes. Chemistry has made some progress along this line with clothing, but so far relatively little with food and shelter.

Water is another answer. Within five years, chemists may find an economical way to recover fresh water from the sea—for irrigating barren lands. And perhaps in 10, more probably in 20 years, chemists may learn how to duplicate the process of photosynthesis. This is the process by which plants use light to make food. It may have great importance to human needs.

• **Power**—Atomic energy is expected to make great strides within the next five years. Within 15 years, many scientists believe, 5% to 10% of all electrical energy will come from atomic power. Within 10 years, radioisotopes in the hands of industry may save as much as $1-billion a year. These isotopes will be used to trace what happens during manufacturing processes.

Solar energy is due to come, too, though it will probably be 20 years before direct conversion of sun power even begins to take some of the load off coal, oil, or natural gas.

The Magnesium Plant That Can't Be Sold

The future of the world's biggest magnesium plant—the government's 36,000-ton facility at Velasco, Tex.—is tied up this week in a knotty antitrust issue.

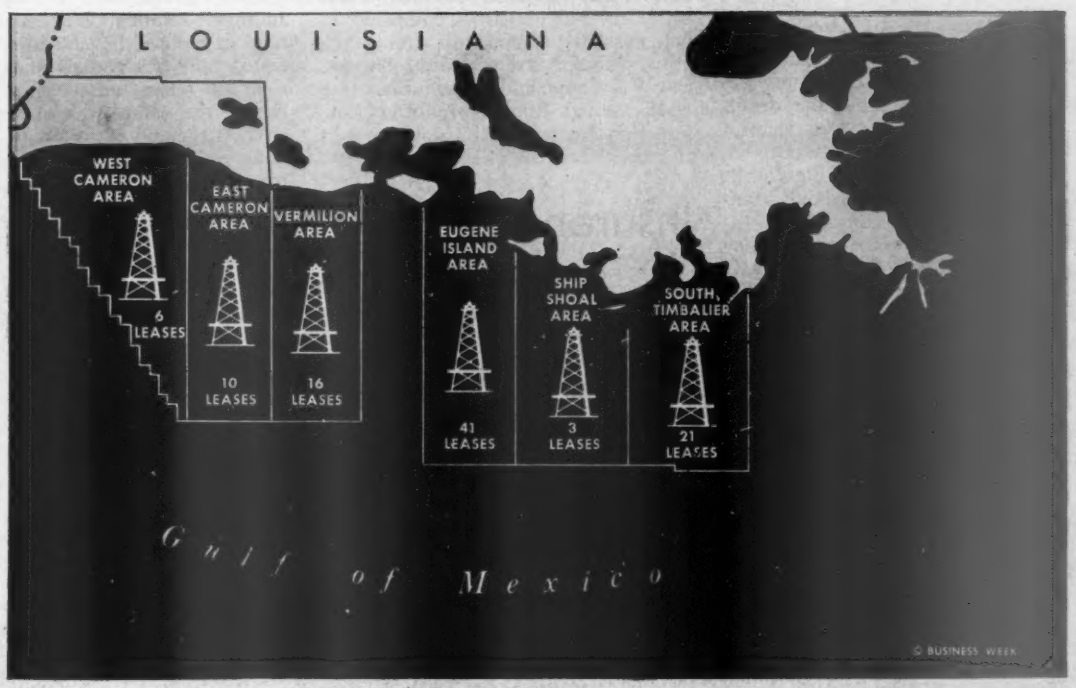
Dow Chemical Co., which operates the plant for the government on a lease that expires next week, wants to buy it. General Services Administration is willing to sell. But the Justice Dept. feels the proposed sale to Dow would "tend to maintain a situation inconsistent with the antitrust laws." It suggests that GSA sell the plant to somebody else.

• **Wallflower**—This is easier said than done. As GSA is finding out, it's hard to interest U. S. businessmen in producing magnesium. The whole business is so tricky (BW—May29'54,p56) that only Dow cares to touch it, along with a few companies that produce the metal in small quantities for highly specialized uses. Furthermore, the Velasco plant is in the middle of a huge mass of Dow facilities. Whoever bought it would find himself almost wholly dependent on Dow's adjoining power plants, water and gas lines.

But GSA's selling job isn't completely hopeless. The Justice Dept. has said it will approve a sale to Dow if GSA and the company can show that antitrust laws won't be violated.

The Rush Begins for Off Shore Oil Leases

Here's where the industry is taking up leases on the continental shelf off Louisiana



It's a $129-Million Bet on Tidelands

The number and size of the bids for the right to explore and drill for oil in government Tideland areas surprised and delighted Interior Dept. officials when they opened sealed bids last week.

Top bids for some 97 leases in the offshore area of Louisiana brought $129½-million. In addition to this healthy money from the leases, the government will also get at least $3-an-acre rental plus one-sixth royalty on any oil or gas produced.

Gulf Oil Corp. was top bidder, with successful bids of about $36-million. The other top bids were submitted by 19 firms or individuals—principally the major oil companies. Winning bids on tracts ranged from $17.68 an acre—barely above the $15-an-acre minimum prescribed by the law—to $1,220 an acre, which Forest Oil Corp. paid for a 5,000-acre tract in the Ship Shoal area.

The government had originally offered 199 tracts for leasing. However, because of the controversy raging between Washington and Louisiana as to the boundaries of the Louisiana Tidelands area—the government says the area extends out to three miles, the state claims 35 miles (BW—Sep.11'54, p55)—19 tracts were withdrawn from the bidding. Of the remaining 180, only 97 were sought after by oil companies.

• **Big Stakes**—By any standards, last week's bids were high. For example, a couple of months ago Texas received bids for leases on about one-fifth of its Tideland acreage, got only $32-million.

But the oil companies are playing for big stakes. According to the National Petroleum Council, within five years after drilling begins in the Louisiana area, there will be a 200,000-bbl-a-day production. There are also good possibilities that sizable sulfur reserves may be found in the Tidelands area. Humble Oil & Refining Co. found it in its Tideland drilling earlier this year, and Shell Oil Co. paid $1.2-million for five offshore sulfur leases.

• **Wrong Play**—During the Louisiana bidding, there was one nightmarish mixup. The 326 bidders had been given notice of what was up for lease, and had sent geologists to prospect for the most promising properties. Later, Kerr-McGee Oil Industries, Inc.—headed by Sen. Robert S. Kerr of Oklahoma—aggressively came in on 12 bids, and was sole bidder on seven. The company offered $15-million for the awards, and put up 20% of the total as a binder. When the awards were made, Kerr-McGee found that part of its bidding was inadvertently made on the wrong areas.

The company then asked Interior to cancel out its seven successful bids and put them on the block again. But throwing out seven tracts on which the company was the sole bidder would involve over $8-million. Interior isn't certain that it can do so, and is asking Justice Dept. and the General Accounting Office for a ruling.

• **Winner**—The Interior Dept. awarding of bids is being done under the Outer Continental Shelf Lands Act of 1953, and provides that all proceeds from the sale and production of leases go into the Treasury. Recently, Interior announced another area of bidding off the shores of Texas, extending from Port Aransas to High Island. Bids will be opened Nov. 9.

Going It Alone

New head of American Motors scoffs at merger rumors. His goal: A Big Fourth in autos.

George Romney, aggressive new head of American Motors Corp., is busy reorganizing AMC to fulfill the dream of founder George W. Mason, who died two weeks ago (BW—Oct.16'54, p27). The dream: AMC as a Big Fourth in the auto industry—without combining with any other company.

At a press conference, Romney brushed off speculation that AMC would be driven to merger with Studebaker-Packard for lack of management depth and youth. He said Nash Kelvinator, one of AMC's predecessor companies, had plenty of both. Now, he announced, he has created an executive policy committee with an average age of 47—which happens to be his own age.

The only executive committee names Romney disclosed this week are B. A. Chapman, manager of manufacturing; John Brown, executive assistant to Romney; Edward L. Cushman, director of industrial relations, and William McGaughey, in charge of management development and communications.

What Romney called "a hard, strong core of younger men" was enlarged this week. AMC announced the appointment of Roy Abernethy, 48, as vice-president in charge of Nash sales. Abernethy resigned as vice-president (sales) at Kaiser-Willeys to take the new job, succeeding H. C. Doss, who retired after 10 years of heading Nash sales.

• **Financial Strength**—Moreover, says Romney, AMC now has total assets of $402-million, working capital of $115-million. Since the merger last spring, the company has paid off $42-million in bank loans; on Sept. 30, outstanding loans were around $30-million.

Romney points to the strength of AMC's Kelvinator Div., which is outranked in sales of large appliances only by General Electric, Westinghouse, and Frigidaire Div. of General Motors. In two years, Kelvinator has doubled its number of appliance products; in September its laundry sales were twice the volume of any previous month in its history.

• **Already Diversified**—"We are highly diversified," Romney told reporters, "and because of the automotive program that George Mason developed, we know we have a bright and prosperous future as American Motors." He added, significantly: "It's not based on merger with any other company."

"There are no merger discussions," he said, "and there have been none with Studebaker-Packard—none involving officials of the two companies and none involving intermediaries of the two companies."

Instead of merger, Romney said, Mason had discussed "product reciprocity" with Studebaker-Packard before his death. The idea is for companies to buy essential components from each other. Packard is reportedly selling its new V-8 engine and its transmission to AMC, though Romney would not confirm this. In turn, AMC might sell its air-conditioning system to Packard.

Insurance Ads . . .

. . . are new FTC target. Agency accuses 17 firms in non-group accident and health field of false claims.

The Republican Federal Trade Commission is letting no dust settle on its investigations.

Last week, FTC backed up its July economic study on coffee with legal action against the New York Coffee Exchange (BW—Oct.11'54,p32).

This week, FTC filed false-advertising charges against 17 companies selling non-group hospitalization, accident, and health insurance. The charges came after a 10-month, nationwide investigation.

Among the 17 companies listed are the four largest in the business of selling accident and health insurance on an individual policy basis: Mutual Benefit Health & Accident Assn., Omaha, Neb. (Mutual of Omaha); Bankers Life & Casualty Co., Chicago (The White Cross Plan); Reserve Life Insurance Co., Dallas; and United Insurance Co., Chicago.

FTC says the 17 companies account for over $300-million in annual premiums, about one-third of the total coverage by individual policies in the U. S.

• **Swift Growth**—FTC's investigation points up the phenomenal growth in the field. Premium payments for accident and health insurance came to over $3-billion in 1953. Of this, over $1-billion goes to companies selling policies on an individual, non-group basis.

This is three times the 1946 figure, and compares with premiums of $161-million in 1935 on individual policies.

All sorts of advertising media have been used to get business—ranging from full-page newspaper ads and circulars through the mails, to matchbook covers, transit ads in buses and street cars, and radio and TV.

• **The Charges**—In general, FTC charges use of false or deceptive advertising claims about the extent of coverage provided and benefits payable.

FTC's charges of misrepresentation break down into eight general categories. Thought no one company is charged with engaging in every practice, here's how FTC says the policies vary from typical advertising claims:

Policy termination. The claim: "No automatic termination age, no increased costs or reduced benefits after policy is issued." FTC says most of the policies sold are renewable solely at the option of the company, and can be canceled at the end of any term.

Extent of coverage. The claim: "It pays you up to $15 a day for 100 hospital days—for each sickness or accident." FTC says policies so represented don't pay at all for losses caused by nervous disorders, dental operation, pregnancy, hernia, etc.

Maximum payments. The claim: "We pay up to $525 for each surgical operation" or "surgical fees, up to $400." FTC says many policies provide such amounts only for one or two comparatively rare operations.

Beginning of coverage. Some companies say their coverage is effective on date of issuance of the policy. Actually, coverage for many sicknesses is delayed until the policy has been in effect a specified period.

Health status of applicant. Some companies say that no medical examination is required, implying full coverage regardless of the health of applicant when the policy is issued. FTC says what isn't disclosed is that any claim traceable to a condition existing when the policy was issued is not paid.

Chmn. Howrey said the companies will have 20 days to answer the complaints.

Cleveland Cliffs Sells Its Coal Business

With hard times in the coal business, many people have long expected a shake-up of mergers and acquisitions. Up to now, most deals have fallen through (BW—Sep.11'54,p27).

This week, however, after 18 months of negotiations, Cleveland Cliffs Iron Co. sold its coal marketing division to Island Creek Coal Co. of Huntington, W. Va. The sale included Cliffs's upper lakes docks and its offices in nine states, which have been selling about 4-million tons of coal a year. Cleveland Cliffs will be paid in Island Creek stock.

The deal set off speculation about future moves in the coal industry by Cyrus Eaton. Eaton is board chairman of Chesapeake & Ohio RR, which has a close shipper-carrier relation with Island Creek, and he is also on the Cleveland Cliffs board and chairman of West Kentucky Coal Co.'s board.

With a great deal of satisfaction, Mr. Friendly announces . . .

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IT took ten years to write. It fills a great need that smaller firms (under 100 employees) have long felt. We think it is one of the most valuable contributions ever made by the American Mutual Safety Engineers.

It is the new, "correspondence course" program designed for busy, small business executives . . . "PRODUCTION WITHOUT ACCIDENTS IN THE SMALLER BUSINESS."

In easy-to-digest installments of 10 information-packed booklets, this series provides a step-by-step guide to a working understanding of accident control. Until now, the time- and money-savings that come from better management and production techniques have not been available to small business.

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product strength-

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That's the way hundreds of other manufacturers have designed stronger and more durable products. They discovered that Hackney Deep Drawn Parts can be made from high strength steel—can be heat-treated to minimize welding and forming stresses — can meet some design requirements as a one-piece, entirely seamless part.

In addition to extra strength and extra long life, Hackney Deep Drawn Shapes and Shells often contribute other product improvements, including:

Closer tolerances
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Faster assembly—Lower cost
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CONTAINERS AND PRESSURE VESSELS FOR GASES, LIQUIDS AND SOLIDS

BUSINESS BRIEFS

First atomic power for a surface ves is proposed by the Navy for a big F restal-type aircraft carrier, the fifth that class. Tentatively, Bethlehe Fore River shipyard at Quincy, Ma is picked to build the ship and engin the power plant into it; Westinghou to build the atomic reactor, and Ne port News Shipbuilding & Drydo Co., to build the shielding.

•

British comet crashes were due to me fatigue that allowed pressurized cab literally to explode (BW—Jul.17'5 p96), a court of inquiry decided in Lo don this week.

•

Justice Dept. slapped a civil antitr suit on 18 American and six Swiss co panies in the jeweled watch trad charging conspiracy to restrict and co trol the manufacture of watches in t U.S. and the import of watch mov ments for assembly in the U.S. Defen ants include most of the big U.S. co panies that assemble Swiss parts.

•

Generating capacity of the electr power industry passed the 100-millio kw. milestone this week when Detro Edison started its fourth unit at th new St. Clair power plant.

•

The Supreme Court refused to rehe the Phillips Petroleum Co. case (BW Aug.21'54,p29) and the Federal Pow Commission went ahead with imposin price regulations on 4,000 independe natural gas producers. The industry stepping up its efforts to get legislatio that would kill this federal control. . . FPC gave a conditional O.K. to Ame ican-Louisiana Pipeline Co. to build \$130-million gas line from Louisiana t Michigan.

•

Ford Motor Co. is going ahead with it Continental luxury line for next ye (BW—May15'54,p27). Vice-Pres. Wi liam C. Ford's Special Products Di was renamed Continental Div. thi week. Detroit's guess on volume: abou 2,500 custom-built cars a year. Price about \$10,000.

•

Dow Chemical Co. plans to withdra from the industrial atomic power pro ect it began with Detroit Edison i 1951. The project will go on developing a breeder-type reactor for commercial power. The 25 other companies in th project are adopting a new name, Atomic Power Development Associates and drawing in nine other companies. Dow says it will continue independent research on utilization of nuclear re actor byproducts but isn't interested i atomic power as such.

Keeping chemical cars from cooling

Here's a job that's really man-sized! The worker above is insulating a whole chemical tank car with fibrous glass. His job of attaching this heavy-duty material to the metal surface of the car is a lot easier now than ever before—thanks to a 3M adhesive. It used to take a lot of time and patience to attach the insulation using straps and clamps. Now one man can do the entire job in short order with a minimum of effort. The adhesive is brushed on to the tank car, the insulation is pressed into contact and cut to size. That's all there is to it!

As a result, warm chemical solutions can be shipped without losing their valuable heat, allowing chemical concentration to be kept at a high level while in transit.

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Allison TORQMATIC equipped Osgood dragline owned by J. C. Kitzmiller Coal Co. Unit has 3 yard bucket, 80 foot boom, strips 1000 tons of coal per month.

AFTER 20,000 hours of low-cost strip-mining, veteran mine owner J. C. Kitzmiller reports "smoother stripping — reduced cable cost" due to shock-free power transmission in his Osgood dragline. The savings he's made with his Allison TORQMATIC Converter have made him decide to specify Allison TORQMATIC DRIVES in future equipment.

He's spending less for cable replacement in his Osgood dragline because the TORQMATIC Converter protects cable by absorbing sudden shock loads.

He's spending less for dragline repairs, too. The TORQMATIC Converter gives the operator time to cut off power—"throw out the drag"—when the bucket hits a snag, guards boom and drive line from harmful overloads.

And he's getting more work from his drag because with fewer repairs it stays on the job *earning* money—out of the shop *costing* money.

The TORQMATIC Converter matches engine power to load demand, helps prevent harmful engine lugging and stalling. It multiplies engine torque up to 3½ times—broadens the engine's effective horsepower range.

When load demand is equal to, or less than, engine torque, the Allison TORQMATIC Converter acts as a fluid coupling to conserve fuel, boost engine life. This feature is standard equipment in every Allison Converter.

You can produce more for less with shock-free TORQMATIC power transmission in your 40- to 400-horsepower gasoline or Diesel equipment. Ask your manufacturer or dealer about TORQMATIC DRIVES in your equipment or write for more information to: Allison Division of General Motors, Box 894B, Indianapolis 6, Indiana

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WASHINGTON OUTLOOK

WASHINGTON BUREAU
OCT. 23, 1954

Republicans now say the best they can do is squeeze in again. And even to hope for that takes some very sharp-pencil figuring—putting a lot of weight on these factors: (1) apathy of voters across the country, and (2) a GOP organization better geared than the Democrats to get the faithful to the polls, while the less partisan voters stay home.

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The odds are against the GOP. Democratic victories are being predicted more and more confidently. It's not the landslide, yet, that Democrats are boasting about, though an upsurge in enthusiasm among voters could make it one. So far, though Republicans admit they can't do any better than hold their own, they insist the Democrats can't do much better, either. A tight rundown of district after district indicates this week that a Democratic margin of 10 to 20 seats is much more likely than a sweep of 40 to 50.

The size of the vote may determine the size of the majority.

Eisenhower will continue to stepup his part of the campaign in a last-ditch effort to save the Republicans. Vice-Pres. Nixon is bringing Communism and corruption back into the campaign to try to get GOP factions together. Sen. Irving Ives's charge of waterfront scandal against Averell Harriman could have an effect on a faltering Republican campaign for governor of New York. But politicians viewed it as a desperation move, with polls showing Ives badly behind.

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Eisenhower Republicans are keeping up their hopes of electing Clifford Case in New Jersey and John Sherman Cooper in Kentucky to the Senate. They figure that if these two win, the "liberal" wing of the GOP can at least keep control of the party. They see an Old Guard uprising in party ranks if the Democrats win the Senate by beating Cooper and Case. Already the Chicago Tribune has about thrown in the towel in Illinois, complaining that Republican Joseph Meek is losing to Sen. Paul Douglas because he switched from a "real" Republican campaign to a pro-Eisenhower line.

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The farm issue will get an election eve revival from next week's agricultural outlook conference in Washington. That's the annual meeting of department experts to put out their estimates of where crops are going, where farm income is headed, etc. Their findings could very well tip a Congressional district or more.

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Washington is marking time until Election Day is over. (See page 27.) Some of the problems facing the Administration will be influenced by the outcome immediately. Where to go on the Dixon-Yates power controversy is No. 1; the feeling is general that a Democratic victory will pretty much kill it. Senate debaters on the McCarthy censure will "read the election returns," too.

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A scandal is brewing over buying of tungsten for the government stockpile. General Services Administration has run out several possible "fraud" cases. The story is that tungsten is being smuggled into the U. S. from Mexico and elsewhere and sold as U. S.-mined metal to the Emergency Procurement Service at more than double the world market price. The government pays a premium for domestic tungsten to encourage production.

Cities can look forward to a continuing federal aid program for airports next year. The $22-million being allocated now will be matched again in Eisenhower's budget, may be increased. Civil Aeronautics Authority Chmn. Lee estimates that a continuing and even larger program fits right in with the President's highway ideas, and developing government thinking on an expanded school construction aid plan (BW—Oct.16'54,p37).

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A straw in the tax reduction wind: Eisenhower's chief economic adviser, Dr. Arthur F. Burns, talks of putting consumer tax reduction ahead of increased spending as first remedy if recovery doesn't come. It was generally overlooked in news accounts of his speech to the Economic Club in Detroit. What he said: "Give priority to tax reduction over expanded expenditures, and use tax reduction to stimulate both consumption and investment rather than one or the other." The speech was significant. Burns was "politicking," which he hasn't done before as Economic Council head.

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The railroads are fighting expansion of first class mail by air. They're petitioning the Civil Aeronautics Board to turn down two airlines' requests to try out the service among 19 cities on the West Coast. Postmaster General Summerfield is for the expansion of the trial beyond the experiments already O.K.'d on the East Coast. He wants to see whether the airplanes can cut postal costs.

Early agreement on a policy on first class by air is doubtful. A special panel was supposed to report to Commerce Dept. last week, but reported they couldn't come to unanimous conclusions. So they'll try again. The East Coast experimentation has been extended also, to September, 1955.

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Another try at cutting paper work on government contracts is under way. This time the Budget Bureau has a business committee going heavy at cutting the red tape—the triplicate and quadruplicate government regulations on delivering and transferring title on goods sold to the Defense Dept. and other agencies. The hope is that a new system can be approved that jibes more closely with general business practices.

—•—

A tryout of a "stripped down" fighter for the Air Force is what's involved in the new contract let to Lockheed for the F-104 (page 26). After a couple of years of investigation, the Air Force decided to build a plane to test out fighter pilots' complaints that U. S. planes are too heavily loaded with gear; that they couldn't keep up with Soviet MIG 15 in Korea. U. S. planes outweighed the 13,000-lb. MIG by about 7,000 lb.

The F-104 will be only 4,000 lb. heavier. Air Force generals wouldn't go all the way with their fighter pilots on stripping new fighters of considerable armor and other gear. But they're willing to try a compromise.

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The baby boom is still going strong. And that means continuing good business for housing, infant and children's wear, nursery equipment, and later for school construction. Government statisticians forecast an all-time high birthrate this year of around 4.1-million, up from the 1953 estimate of 3.9-million.

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HOW FAST SHOULD INDUSTRY OBSOLETE ITS PRODUCTS?

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From "Hicolor" come new rayon yarns with truer color ranges at lower cost.

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RAYOCORD-X
Research Division Product File
Enlarged cross-section of rayon fibers produced from newest chemical cellulose—Rayocord-X. Note heavy outer skin (dyed blue) which, with new spinning techniques, adds new strengths (over 3 grams per denier), durability and toughness to tire cord. New rayons—washable, longer wearing, more comfortable—can now be made from Rayocord-X.
Sample of Rayocord-X as basic raw material for rayon, tire cord and related man-made fibers.

Tires can give better service, take more punishment and wear longer when rayon tire cords are made from "Rayocord-X."

Newest is "Rayocord-X." Developed as low-cost raw material for a stronger tire cord, its complex molecules are utilized in a dynamically different manner: Used with new spinning techniques, it increases tensile strengths, fiber durability; offers new opportunities for rayon in many fields.

Today's "Rayocord-X" will survive until research produces cellulose with new, superior characteristics.

Already "Rayocord-X" has undergone major modifications since its introduction in 1953. Now it can be adapted to manufacturing quality, washable rayon. Thus, its predecessor, "Rayocord," a standard raw material for rugged tire cord, will shortly be obsoleted as Rayonier again fulfills basic policy.

cellulose chemistry

RAYONIER
INCORPORATED

Executive and General Sales Offices: 161 East 42nd Street, New York 17, N.Y.

Machine shop of Dravo Corporation after being repainted according to COLOR DYNAMICS. This steel-framed structure, 483 feet long by 138 feet wide, is located on Neville Island, near Pittsburgh, Pa.

Pittsburgh COLOR DYNAMICS®

"One Of The Best Things That's Happened In Our Plant!"

Dravo Corporation's workers and management agree enthusiastically that functional use of color improves working conditions and increases productivity ...*Yet it costs no more* than normal maintenance painting!

AN OUTSTANDING EXAMPLE of the improvement in productivity and morale that results from the use of Pittsburgh COLOR DYNAMICS is the huge machine shop of Dravo Corporation, builders of heavy industrial equipment.

The activities in this shop include all machining and assembly operations required to produce individualized mechanical assemblies for river tow-boats, shipyard cranes, ore bridges and similar heavy machinery.

This plant was repainted according to COLOR DYNAMICS. The beneficial effects of this painting system are best described in these words of a Dravo Corporation spokesman:

"As the dull, drab gray was replaced by the modern, functional colors Pittsburgh carefully engineered for our requirements, workers enthusiastically commented, 'This is one of the best things that's happened in our plant!'

"Thus COLOR DYNAMICS provides a 'lift' for management-employee relations through improvement that can be seen, felt and appreciated. Further, there are dollars-and-cents advantages resulting from higher productivity at lower costs.

"Visitors constantly remark on the improved appearance. Therefore, we feel that COLOR DYNAMICS has enhanced customer as well as employee relations.

"Periodic painting of buildings and equipment is a maintenance necessity. That's why we consider these benefits from painting the COLOR DYNAMICS way as a highly desirable and worthwhile bonus."

Ask For Color Engineering Study Of Your Plant—It's FREE!

- Why not test the practical value of COLOR DYNAMICS in your plant—on a machine or two, or in a whole department? Send for our free book which explains how you can use this painting system simply and easily.
- Better still, call your nearest Pittsburgh Plate Glass Company and ask to have a representative give you a color engineering study of your plant, or any part of it, without cost or obligation. Or mail coupon at right.

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☐ Please send me a FREE copy of your booklet, "Color Dynamics."

☐ Please have representative call for Color Dynamics Survey without obligation on our part.

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How International Harvester Cuts Prices on Truck Parts

• Take an I-H truck or tractor part that has a retail list price of	$10.00
• The I-H dealer buys this for	6.50
• This gives him a — theoretical — markup of	$3.50
• BUT this dealer's competition is selling an identical part made by an independent parts maker for a retail price of	$7.50

SO I-H declares that this item shall be put under what it calls its "Classified Trade Plan."

• The dealer now sells at	$7.50
• Since he still paid this much for the part	6.50
• His profit would only be	$1.00
•But I-H gives him a rebate. The amount depends on item; say it's 20%	1.30
• Which means that the dealer's profit under CT comes to	$2.30

Help for Embattled Dealers

Price wars among dealers are an occupational hazard in many U. S. industries. War is now raging furiously in the appliance industry, for instance. Gasoline stations in many states know only intermittent peace. Such wars are generally noisy; and, very often, they lead only to a nervous truce and the hint of more wars in the future.

In the truck parts business, things have been different. A war has been going on here for a long time, but it has been a relatively quiet war. It has not made many headlines, and the general public barely knows of its existence. Yet it has been hurtful enough so that, unlike many other retail- and wholesale-level price wars, it has brought on strong and determined action by big manufacturers in the field.

General Motors Corp. moved in during the spring with its so-called "override" discount (BW—Apr.3'54,p160)—a plan calculated to put GM's dealers into the parts wholesaling business in a big way. Now, as the table above indicates, International Harvester Co. has waded into the fight with an idea it calls the "Classified Trade Plan." The company has just divulged the details of the plan, which gives Harvester's dealers direct financial compensation for the wounds they suffer on the battlefront.

There are rumors in the trade that at least one other major truck maker has evolved a plan similar to Harvester's. It all adds up to a major upheaval in truck parts pricing—which may set a pattern in other industries (page 50).

• **War**—The background for Harvester's move has been a hot competitive battle that developed after World War II. Along with the big postwar increase in the number of trucks and tractors in the country, there has been a tremendous increase in the number of independent parts makers. These companies manufacture standard parts, and in many cases make them cheaper than the big automotive companies can.

The independents have an advantage in that they make only fast-selling items, whereas a big truck manufacturer has to make and stock parts for vehicles it sold in the 1930s—and sometimes earlier. The independents skim off the cream of the business.

The growth of the independents has, in turn, wrought big changes in trade channels. As the independent manufacturers multiplied, so did wholesale parts houses—which act as sales outlets for the independents' products. From 1946 to 1953, wholesale parts houses increased in number from 7,042 to 11,053. They specialize in selling "automotive type" parts for trucks and tractors—parts such as fan belts and piston rings, common to both trucks and tractors. And they don't confine their efforts to wholesaling. They are also retailers.

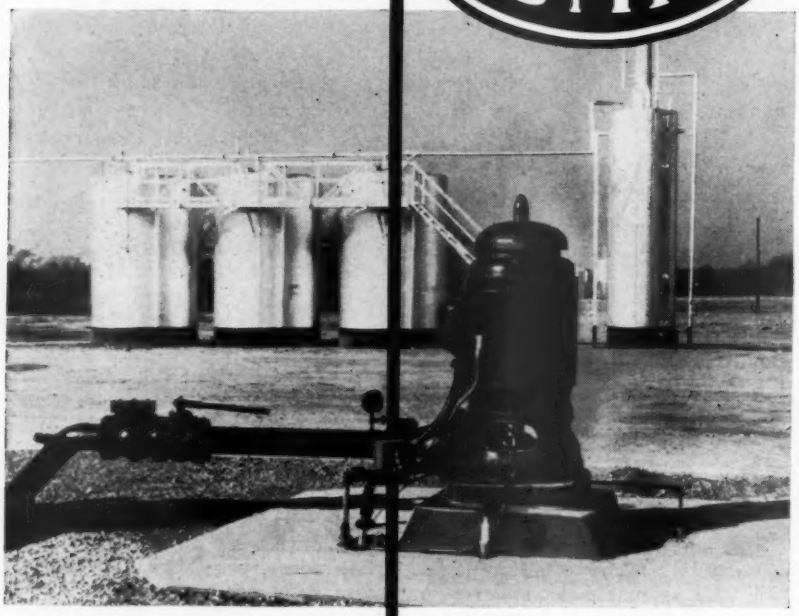
• **Competition**—With independents making parts cheaply, and wholesale jobbers selling the parts aggressively, Harvester dealers have found the competition growing steadily rougher. Harvester itself hasn't been getting all the parts business it feels it should.

In the five years prior to July 1, 1954, the company added 560,000 units to the tractor and truck population of the U. S. In the same period, Harvester's parts sales rose from a yearly $162-million to $224-million. But on the standard parts involved in the price war, Harvester figures that its 1953 sales, compared with sales in 1948, "were down $20-million, based on a common dollar."

• **Possibilities**—Searching for a solution, Harvester experts mulled over several possible approaches:

Retail price reductions. Harvester decided this was not the answer, for its

What's NEW in pumps from PEERLESS PUMPS ?



Pumps set at 1000 ft. FOR PROFITABLE SECONDARY RECOVERY OF OIL

This is an action photo of a Peerless deep well turbine pump lifting salt water from a depth of 1000 feet for use in repressurizing an oil field located at St. Elmo, Illinois. Five of these pumps have been doing this job for over a year at higher efficiencies, with greater dependability and at lower maintenance costs than the type of pumps they replaced. Possibly you could use the same Peerless product quality, the same Peerless engineering skill, the same Peerless economical operation, that set the above record, to provide or boost water in your business. Use the coupon below for full information.

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Write for 4-page bulletins describing both the installation above and the Peerless deep well turbine pump.

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301 West Avenue 26, Los Angeles 31, California
Please send deep well turbine pump Bulletins B-101 and B-141

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list and net prices were generally in line with those of the parts industry; and "our problem was to find a way to make it possible for I-H retail dealers to compete with wholesale firms that sold to both wholesale and retail customers." What's more, a lot of its parts are not subject to this discount competition; price cuts here would simply reduce company and dealer dollar volume. Finally, it recognized that if it cut prices, everyone else would do likewise.

Improved dealer margins. Dealer discounts, Harvester felt, were already adequate. They run to 45% or 50% on fast-moving items.

Quantity discounts. These are generally considered "bonuses" by the dealer; they do not actually influence a customer's parts manager to buy service parts from I-H, or to buy more than he would without discounts.

• **Plan**—Harvester's solution was its so-called Classified Trade Plan.

Basically, this provides financial aid, in the form of rebates, to any dealer who has to reduce parts prices to meet competition. On such sales, the dealer absorbs part of the cost of the discount he has granted, and I-H absorbs part.

For this purpose, Harvester has established special prices on about 60,000 parts that it has found are most subject to price-cutting. These CT (Classified Trade) prices represent what might be called the "going price" or the amount of discount from list being granted generally on each individual part. The CT prices range mostly 10% to 35% below regular retail list prices; some go as low as 50% off list.

Items covered by CT prices represent about 90% of the 60,000 motor truck replacement parts but only 10% of the 65,000 tractor replacement parts I-H sells. In the case of the tractor parts covered by CT, all are parts common to both trucks and tractors.

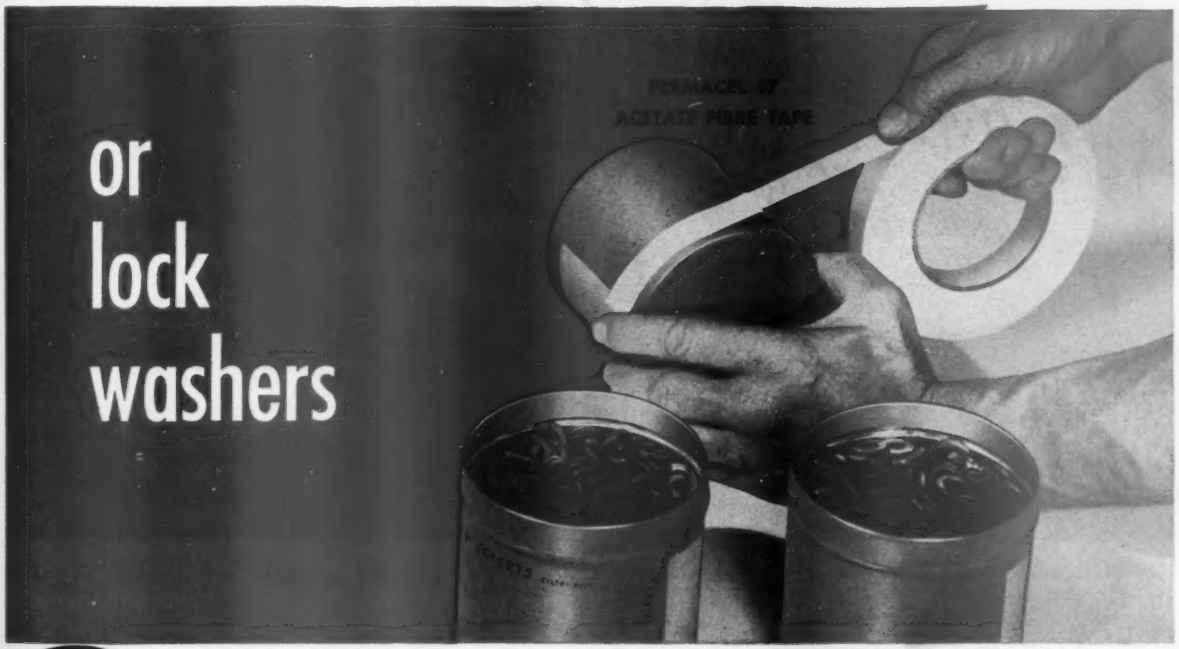
• **System**—Any time a dealer has to cut his prices down to the CT price level to get or hold business, he is entitled to a rebate from Harvester. This rebate varies from 10% to 30% of the dealer price.

Dealers are entitled to a rebate only if they sell at or below the CT price. They don't earn the rebate if they sell at some price between retail list and CT; nor can they get more rebate by selling at less than CT.

• **Discount**—Harvester revised its cash and volume discount system in July, when CT went into effect. Previously, its dealers could offer a 5% cash discount, plus an average volume discount of 2%. Now there is only a straight 2% cash discount.

To keep dealers happy despite this cut in discounts, Harvester cut dealer prices on all parts not subject to CT rebates; these reductions amounted to a little less than 5½%.

Whatever the job...



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HIGHLANDERS pipe customers from display to display, as J. W. Robinson's opens its annual International Fair in Los Angeles.

FRENCH fashions feature Dior's latest concoctions, and . . .

JAPANESE imports pose against a native background. It's how . . .

Stores Go Into Show Business

"A department store must have certain aspects of a circus," says Fred Lazarus, Jr., president of the Federated Department Stores chain. "It has to create a sense of excitement and activity for the shopper. It's got to look busy, feel busy, be busy. Customers just won't shop in a dead atmosphere."

More than ever before, department stores are trying to create just such a three-ring atmosphere to attract customers and hold them long enough to expose them to their wares. To do this, the stores are making increased use of an age-old marketing gimmick: the promotional show or special event, as it is called in the trade.

These promotional shows range from fashion or flower displays, parties, picnics, and parades to musical comedies complete with plot and chorus line,

"Now, to put it together for keeps . . . here's the only thing to use . . . BRASS"

YES, father knows best — or at least he knows his fastenings and what makes them hold fast, *and last.* Nothing else but good, *solid* Brass that you can always bank on . . . *Bristol* Brass, for example.

And more and more manufacturers of screws, rivets, pins and other cold formed products are learning of the savings to be had from the remarkable versatility of wire developed by Bristol engineers. Nothing else permits the making of more types of products and heads (round, flat, etc.) from the same stock. Once they try it, manufacturers reorder from Bristol to take advantage of the inventory simplification offered by Bristol Brass wire.

Brass wire has always been a favorite of manufacturers because it is so easy on tools and machines. And many of them specify *Bristol* Brass wire because they find it consistently uniform in gauge, temper and grain-size — and because Bristol's delivery promises *are kept.* See for yourself. Send us a trial specification *now.*

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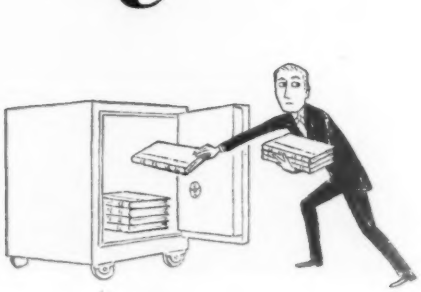
"Bristol-Fashion" means **Brass at its Best**

How dangerous are

dishonest employees?



JUST as surely as an uninsured fire can put you out of business overnight—so trusted employees can do the same thing, over a period of months or years . . . juggling the books or doing tricks with your bank accounts or just plain stealing.

And even after the loss is detected (which, according to statistics, takes an average of three years)—and the previously honest employees are apprehended —*how will you recoup your loss?*

When you have a disastrous fire, chances are you would be insured to *current* values, and fully protected. When you have a *big* employee dishonesty loss, will you have *enough* protection?

Probably not, if the amount is the same now as when your firm was smaller or the amount determined without regard to the long period over which most large embezzlements occur.

A new booklet, *How Well Do You Know Your Employees?* published by The Travelers, answers many questions you may have about employee dishonesty—a serious problem every business must face.

For your free copy—which also gives details of Travelers Blanket Fidelity insurance—fill out the coupon below, attach to your letterhead, and mail.

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B.W.—10-23

a la Broadway. Whatever the special event, the basic idea is to build store traffic.

• **Colossal**—As more and more department stores get into the act, the shows get bigger and more lavish. Often a promotional show is designed to push particular product lines that the store features, and the pictures on page 46 give an idea of the lengths to which one store—J. W. Robinson's of Los Angeles—goes to plug its line of imported foreign goods. Robinson's puts on an annual International Fair.

Among the attractions that greeted customers who walked into Robinson's Los Angeles and Beverly Hills stores on opening night of the fair last fortnight were: 40 Scottish bagpipers, costumed native Japanese and Yugoslavian folk dancers, Italian sweater displays. Shoppers could chat with local foreign consuls who were on hand for cocktails and conviviality, see a dozen or so travel films, and—most important of all—look at special displays of Robinson's imported merchandise.

• **Cheap at $15,000**—Robinson's inaugurated its fair four years ago, found it so successful that it has been expanding on the idea every year since. Last year, for example, was the first time it permitted shoppers to make actual purchases on opening night, a key point in the purpose of such promotional shows. A full-time staff of publicity and promotion people work year-round on the fall fair.

It is next to impossible to figure accurately just how many extra sales dollars a show brings in. But Robinson's estimates that the fair earns "far and above" the $15,000 it costs for a month-long run. Most of this budget goes for posters, flags, decorations, costumes, and other props. Entertainers are scouted up from Los Angeles' many foreign populated colonies, and are rewarded for their efforts with gift certificates.

• **Typical Case**—Robinson's International Fair is a typical case in point of how department stores have (1) put new emphasis on the special event, and (2) adapted promotional shows to their own particular needs.

Merchants have used special displays and entertainment to draw crowds ever since they began selling to the general public. Now the trend to promotional shows "is growing stronger and stronger among department stores," Allied Department Stores' Larry Goodman points out.

There are several reasons behind this trend. The department store has long regarded itself as an active citizen of its community—sponsoring civic activities, donating to charity, providing a variety of special services to its customers, generally building up its name and prestige in the public eye. While a lot of other retailers go in for the special event, this gimmick is particularly suited to department stores—which are more likely to have the facilities, space, and money for a big, storewide promotion, running for a week or more.

Department stores take advantage of the type of special event that suits their particular needs. A good many of the bigger stores still sponsor parades (Macy's in New York has one every Thanksgiving), picnics, or outings (Brooklyn's Abraham & Straus recently took a group of boys fishing). But most stores, especially the smaller ones, stick to on-the-premises shows that attract potential customers. This way, they can play up merchandise featured in any of their departments, and at the same time boost sales volume throughout the store generally.

After one midwestern store threw a party for kids in its children's department, with Bill Boyd there in person as Hopalong Cassidy, over-all storewide sales jumped 15% for that day. And Foley's department store in Houston noted after a special fur fashion show: "We didn't sell too many minks, but you should have seen the $2.98 blouses go."

• **Backstop**—Marketing men point out a basic growing need for department stores to go in for special events and other so-called "sales supporting ideas."

Since the war, the department stores' share of consumer expenditures and profit margins has been slipping steadily (page 52). The consumer swing to suburban shopping centers has underscored the plight of the downtown merchants.

For another thing, department stores are desperate for a way to fight the growing discount-house problem on some battleground other than price. Essentially, price is not a factor in promotional shows and other special events. Few of them are staged in conjunction with a store sale.

The cost of the shows to the individual store varies as widely as their scope. The Broadway type of musical cost one Richmond store an estimated $100,000 for one week. A fashion show or flower display (such as Macy's annual posy exhibit in New York) may run as little as $1,500 a week. If a manufacturer joins with the retail store in sponsoring a show, he may pick up the entire check in return for having his products featured.

• **Bites Back**—An indication of how the special event trend is growing popped up recently in San Francisco. There, ironically enough, a group of suburban shopping centers have banded together to form Shopping Centers Promotions, Inc., to put on the same type of special events that the department stores are using to fight the suburban shopping swing.

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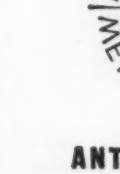

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THE MARKETING PATTERN

A New Kind of Price Competition

KEEP AN EYE on the developments coming out of the truck parts industry's price war (page 43). You may be able to see there the future pattern of price competition in many other U. S. industries.

Up to now, industry has been reluctant to cut prices. An outstanding fact of the economic downturn in the past year has been the general stubbornness of prices. At least on the manufacturing level, they have held fairly firm.

This is contrary to past experience. Judging from what happened during the Depression, a pile-up of goods in inventory is normally accompanied by desperate price-cutting on the part of industry. This is what British economist Colin Clark predicted (BW—Jan.30'54,p84).

But Clark proved wrong. The American economy of 1954, it turned out, is a very different thing from the economy of 20 years ago. It has built into it a series of price props that hold up the whole system. For instance, consider the wage structure as it is embodied in union contracts. Because there is a very definite and very solid floor under wages, manufacturers have very little leeway in lowering prices.

NEVERTHELESS, the 1953-54 recession has put a good deal of pressure on prices. In some fields—notably consumer durables—prices have dropped. But, generally speaking, it has not been the manufacturers, that have initiated the drop. Thus far, price-cutting has occurred mainly at the retail level.

Look back over the strategy in various industries as the recession closed in. The appliance and automobile industries, for instance, have followed a fairly common pattern. Price competition broke out at the retail level—the level at which the products finally pass into the hands of consumers. Dealers fought tooth and nail, squeezed price cuts out of their own profit margins. The manufacturers, by and large, decided to let the dealers take the rap.

It's true that manufacturers made some concessions. But, with a few exceptions, they refused to change their basic price structure to accommodate the dealers.

NOW, THERE ARE SIGNS that something is finally beginning to happen to prices at the manufacturers' level. There are indications that changes are coming that may be widespread.

The price battle that started at the dealers' level is pushing back up the line. In the auto industry, for instance, manufacturers have become acutely nervous about their dealers' troubles in selling cars. Nash has cut its prices to dealers. Ford has worked out a plan that gives dealers financial aid in moving 1954 cars still on their hands. It begins to look as though there is some official recognition of a remark made not long ago by a Detroit observer: "There is no fixed price any longer for a car."

The fluid condition of prices at the dealer level, in other words, is beginning to seep upwards and soften prices at the manufacturing level. The so-called "administered" price—the price set by the manufacturer for the retail level—is badly shaken. A manufacturer bases its price system, with its discounts at various levels and for various quantities, on the maintenance of this end price. When manufacturers tamper with these basic prices, an industry's entire price structure can waver.

That is one reason why manufacturers have been reluctant to do anything with prices. But, in such fields as the truck parts industry, the manufacturers' hands have been forced. To keep their dealers alive in the rough-and-tumble competition, the big manufacturers have had to find ways to fatten the dealers' margins.

International Harvester Co. thinks it has found the answer in an ingenious rebate plan. There is no way of telling yet whether this plan will work as well as Harvester hopes. But the company has shown, at least, that it is willing to look its dealers' situation in the eye.

Other industries are having to do likewise. The makers of machine tools and machinery are going through something like the same painful process (page 90).

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Here's the name and trade-mark to remember. Mead Business Papers are made expressly for the economy-minded man who demands the finest in quality and appearance for all important business forms. Crisp, crackling Mead Bond—*The Bond of American Business*—is a time-proven favorite for letterheads, announcements and statements. And for more specialized needs, there's Mead Mimeo Bond, Mead Duplicator, Mead Ledger, and Mead Opaque. All will meet your most exacting demands. All are genuinely watermarked for your protection—you're never in doubt as to the maker.

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- lift trucks—6 to 8 years.

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PAYMENTS GEARED TO DEPRECIATION. Most important—your payments are geared to the new, faster depreciation allowable each year for the equipment purchased. Payments are graduated rather than uniform. The C. I. T. Plan is devised to fit the fastest method of depreciating your new machinery—the "Sum of the Digits" method. In effect, you write off as expense your equipment payments. Simultaneously, you gain all the obvious cost-saving advantages of new, more efficient equipment.

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Department Store Doldrums

Profits keep slipping, now sales are off, too . . . Bonded Scotch hits U.S. market . . . Legality of price-guide books questioned . . . Automatic vendors humming . . . Oil dealers fight back.

Department store profits are sliding deeper into the dumps. And now, for the first six months of 1954, over-all sales volume has taken a dip, too.

The latest report by the National Retail Dry Goods Assn. on department store operating results for the first half of this year showed that profits, which have been slipping for some time (BW–Jun.5'54,p54), were down drastically–to 0.3% of net sales from 1.3% for the same period last year. NRDGA called this "a serious loss."

The survey of 216 stores also showed an over-all dip in net sales of 2.0%, to $1.4-billion. However, NRDGA noted that the bigger stores–those doing over $50-million volume in annual sales–had a 2.0% sales increase. This points up how hard some of the smaller stores have been hit by the discount houses and suburban shopping centers.

Specialty stores continued to fare even worse than department stores, the study indicated. Only the ones in the $10-million to $20-million annual sales volume category reached the breakeven point; all others showed net operating losses for the first half of this year.

Rising operating costs were again the "overwhelmingly dominant factor in dragging down the profit ratio," NRDGA said. Expenses were up 0.8% to 36.0% of net sales, for department stores; up 0.9% to 37.7% for specialty stores.

Only bright note NRDGA could find in the cost picture was that total expenses rose less in proportion to total sales than in earlier periods. This means "most stores finally have got a firmer grip on absolute dollar expenditures, only to find them proportionately out of line at a time when sales volume fell off," according to NRDGA.

Summing up the gloomy picture, NRDGA warned: "Unless there is a significant comeback during the second half of the year, the 1954 profit figure will be considerably off from levels already considered unsatisfactory."

●

Bottled-in-Bond Scotch will soon hit the U.S. market.

Two brands–Scots Bond and Royal Doulton, imported by Steward Reynolds Co., will meet two U.S. requirements to rate the "bonded" tag: They will be 100-proof–most Scotch is not–and they will be at least four years old. But they still won't be straight whiskey, the third prerequisite for a U.S. bonded brand. In New York, price will be $6.25 a fifth, only a few cents more than regular 86-proof Scotches.

●

This is a "snooper coop" (circled). It's an elaborate device the Fred Meyer Gateway Shopping Center supermarket in Portland, Ore., has installed to catch shoplifters in the act. Looking like an innocent mirror dome on the ceiling, it's actually a crow's nest, where four spotters can sit and keep a lookout over the whole store. Direct phone lines connect the nest with every section of the store and with the store detective.

●

The legality of blue book price-list guides may come under shadow of question as a result of a Federal Trade Commission action last week against a group of 22 regional paper trade associations and nearly 100 jobbers.

FTC ruled that the paper industry's blue books and brown books, published by the trade associations, contained suggested list prices that permitted dealers to charge more for fine paper and wrapping paper than they would be able to charge under normal conditions. This, said FTC, tended to create a monopoly.

The ruling has already raised some eyebrows in other fields where price-guide books are commonly used. Even where such books are put out by private corporations, rather than by trade associations, industry spokesmen this week were leery of the FTC decision.

●

Automatic vending machines this year are doing a bigger business than ever.

At the annual exhibit of the National Automatic Merchandising Assn. in Washington, D. C., last week, some 5,000 machine makers, operators, and suppliers heard the official estimate that coin-operated "silent salesmen" will sell $1.5-billion worth of goods in 1954, roughly a 7% increase over 1953.

The figures are admittedly rough, but here's the way the industry estimates sales through vending machines are going:

	1953	1954
	(In Millions of Dollars)	
Cigarettes	$650.0	$690.0
Soft Drinks	370.0	393.0
Candy (Packaged)	200.0	210.0
Coffee	50.0	65.0
Postage Stamps	40.0	40.0
Bulk (Loose Candy, Nuts, Etc.)	25.0	25.7
Milk	17.0	22.4
Ice Cream	13.0	20.0
Cookies, Crackers	13.0	12.7
Chewing Gum	11.0	12.5
Other	16.2	15.3
Total	$1,405.2	$1,506.6

In percentages, the big increase came from ice cream, milk, and coffee. Growth of dairy products sales through vending machines was one of the main sources of enthusiasm at last week's show. The other was in-plant feeding–which partly explained coffee's 30% rise. A few big plants–among them RCA Victor at Camden, N. J., and Ford Motor Co. export division at Jersey City–have complete automatic catering installations, and the industry is convinced it can do a job in this field. Among several displays for automatic catering, two aroused special interest: Eastern Electric's Lunch-O-Mat, complete with a small Raytheon Radarange (BW–May15'54,p114), and Spacarb's Auto-Snak (recently bought by Rowe Mfg. Co.).

●

Look for hotter competition for the heating market as natural gas reaches into broader territory.

In some areas, coal has already taken a back seat for home heating. A sizzling battle is in the works among purveyors of electricity, fuel oil, and gas.

Already this is apparent on the na-

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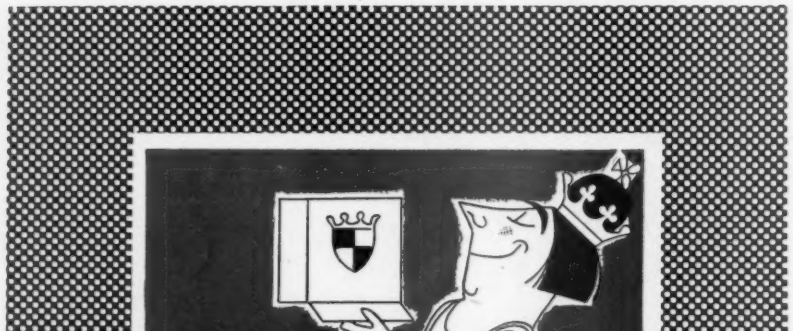
Other Revere aluminum products include tube, extruded products, electrical bar, forgings, rolled shapes and eyelet products. Revere Copper and Brass Incorporated, *Founded by Paul Revere in 1801, Executive Offices:* 230 Park Avenue, New York 17, N. Y.



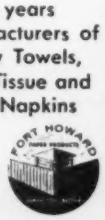
THAN

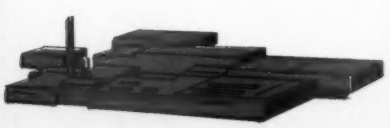
pure white **Fort Howard Paper Towels**

That's particularly true of Fort Howard Handifold — soft, strong, absorbent, yet doesn't fall apart in use because of its Controlled Wet Strength. Like all Fort Howard Paper Towels, Handifold has sufficient body for maximum absorbency. And Handifold towels feel better, dry better, give you truly economical paper towel performance because Stabilized Absorbency maintains Handifold's effective drying power regardless of towel age.

Each of the eighteen grades and folds of Fort Howard Paper Towels has these three requirements of a good paper towel. In addition, all Fort Howard Towels are Acid Free . . . feel good, are easy on your hands. Call your Fort Howard Distributor Salesman today!

For 35 years Manufacturers of Quality Towels, Toilet Tissue and Paper Napkins





FORT HOWARD PAPER COMPANY
GREEN BAY, WISCONSIN

tional level. American Gas Assn. is doing a job to promote its product nationally. Just a week or so ago, Oil Heat Institute set up a program of its own.

At the local level, the dealers are doing battle. Griffin Fuel Co., big oil dealer in Tacoma, Wash., is a good case in point.

The company's chief, Ed Griffin, will give a flat guarantee that his firm will deliver fuel oil to a residential, commercial, or industrial customer for a 10-year period at lower net cost per Btu. than natural gas, manufactured gas, or electricity. He will deposit such contracts in escrow at the Puget Sound National Bank in Tacoma, and will insure them with Lloyds of London.

He hedges the offer by three conditions that would void it: the discovery of natural gas in the State of Washington in commercial quantities; the availability of nuclear energy in any form to the utilities; the event of war or price controls.

Griffin believes he can make his offer stick because, he says, over 80% of the houses in the Pacific Northwest use oil now. Furthermore, he contends that there's an oversupply of oil in the region—partly as a result of the pipeline from Canadian oilfields, and present construction of refineries by General Petroleum Corp. and Shell Oil Co.

MARKETING BRIEFS

No baby-drought in sight: National Office of Vital Statistics has revised its earlier estimates on 1954's baby crop from 3.8-million to 4.1-million—a new record.

•

Safety belts for motorists are a new Hickok product. Because car makers shy away from them as poor psychology, Hickok will market the belts for the do-it-yourself market: The car owner will supposedly hitch the belt to his own car floor. Price: $28.50.

•

A disposable oven is a feature of new Kelvinator electric ranges. Both the sides and the bottom of the oven are lined with aluminum foil. To clean, just throw away the old foil, replace with new.

•

Dr. Pepper is the latest bidder for the canned soft-drink market. This week, the company started testing three types of nonreturnable cans in St. Louis. The 12-oz. cans come in two types: one like a beer can, the other with a conical top. The 6-oz. can has the conical top only. Price for the big cans: 10¢; for the small one, 7¢ or 8¢—against 5¢ for the 6½-oz bottle.

American business gets into THE ODDEST PLACES!

HERE in the waters off a distant shore, sits a member of an American seismic team—sounding, testing, searching for oil. Yes, American business gets into the oddest places.

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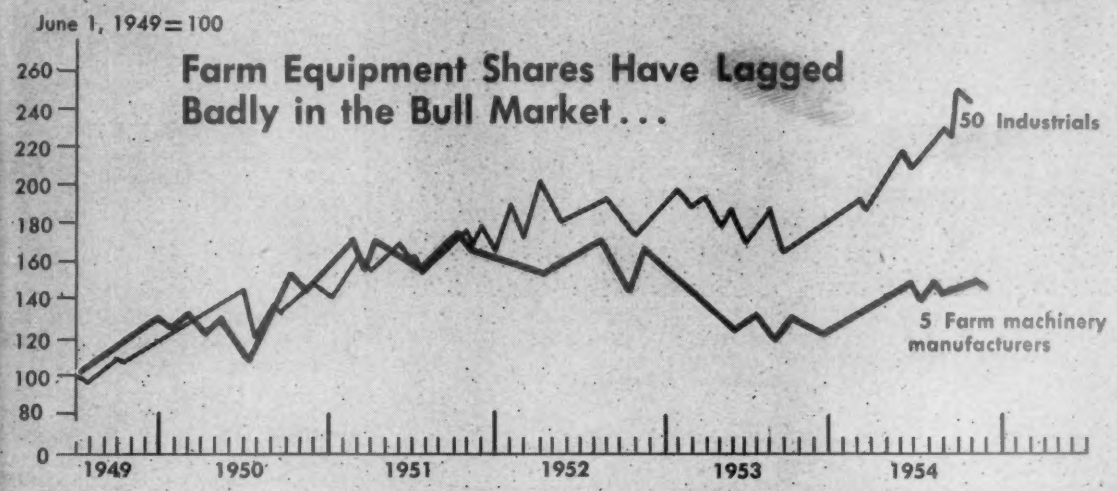


. . . Reflecting the Drop in Farm Income Which Has Cut Into Earnings.

(In Millions of Dollars)

	Best Postwar Year		1953	1954 9 mos.	1953 9 mos.
International Harvester					
Sales	$942.6		$1,256.1	$762.6	$999.8
Income Taxes	48.5		36.2*	27.4	60.0
Net Income	66.7	(1950)	52.0	28.7	38.5
Allis-Chalmers					
Sales	513.6		514.5	258.9**	258.6**
Income Taxes	41.5		19.6	15.5**	14.7**
Net Income	24.5	(1952)	15.2	13.5**	10.5**
Deere & Co.					
Sales	336.5		378.5	256.5	305.5
Income Taxes	34.0		26.6	19.2	29.3
Net Income	42.8	(1950)	24.7	16.3	20.0
Oliver Corp.					
Sales	103.3		136.6	92.7	95.2
Income Taxes	5.5		2.9	2.2	1.8
Net Income	7.9	(1948)	2.8	2.1	1.6
J. I. Case Co.					
Sales	156.0		111.5	69.5	85.4
Income Taxes	12.3		0.9	1.2cr.	0.9
Net Income	17.6	(1949)	0.8	—1.1	0.8
Minneapolis-Moline					
Sales	79.2		105.7	57.7	77.0
Income Taxes	5.4		2.1	0.7cr.	1.6
Net Income	7.0	(1950)	2.1	—0.6	1.4

N.B. All companies listed have fiscal years ended Oct. 31 except Allis-Chalmers

cr. Tax credit * After tax credit of $3.8-million ** 6 mos. to June

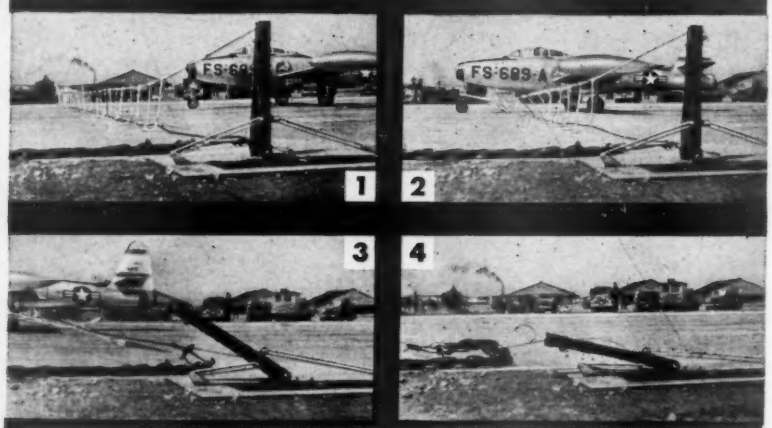
©BUSINESS WEEK

Where the Farm Recession Hurts

In another week the fiscal year will end for most of the country's farm equipment manufacturers. And the chances are that their reports for 1953-54 will bear out Wall Street's earlier appraisal of these companies. The farm equipment shares haven't exactly been orphans in the current bull market (chart above), but they have trailed well behind the leaders. While they are selling above their September, 1953 lows, they are still a long way from the highs racked up in 1951.

As Streeters have suspected, this year will probably be their worst, in earnings, since 1947. For five of the six companies listed above—Allis-Chalmers

now we're saving runaway jets!



Landing a plane without brakes is no small problem.

Yet it's being done with the Runway Over-run Barrier now being built by Acme for U.S. Air Force continental installations. Earlier models at Far Eastern bases already have saved over 40 planes and their pilots.

Here is another example of putting Acme's unusual skills and facilities to use. No problem is too difficult or unusual for Acme engineers . . . explaining Acme's success with design and engineering work, tooling, special machinery, process and test equipment, precision aluminum castings, and fabrication or machining of complete assemblies.

We love challenging problems! Send us yours for preliminary investigation and analysis.

1 2 3 4

These sequence photographs show an F-84 jet fighter, simulating a brakeless landing at approximately 120 m.p.h. No. 1: plane approaches Runway Over-run Barrier consisting of nylon webbing and steel cable, affixed to twenty tons of steel chain, and attached to steel stanchions. Next: webbing is engaged, raising cable to landing gear height. Third photo: landing struts pull cable taut, breaking it away from stanchions. No. 4: chain is pulling plane (out of photo) to smooth 200-foot stop.

Engineering and Tool Division

Acme ALUMINUM ALLOYS, INC.

232 NORTH FINDLAY STREET, DAYTON, OHIO

has a Dec. 31 yearend—net income for the first nine months of fiscal 1954 was down 28% from the previous year. And 1953 was far below the peak postwar years.

There are three basic reasons for the earnings drop:

• Farm income, the key to the health of farm equipment makers, is declining, continuing the dip that started in 1952.

• The tremendous demand for farm machinery that built up during and just after World War II has been satiated. Nearly 75% of all farm equipment in use today is of postwar vintage.

• Defense business, for most companies, has dropped way off in the last 18 months.

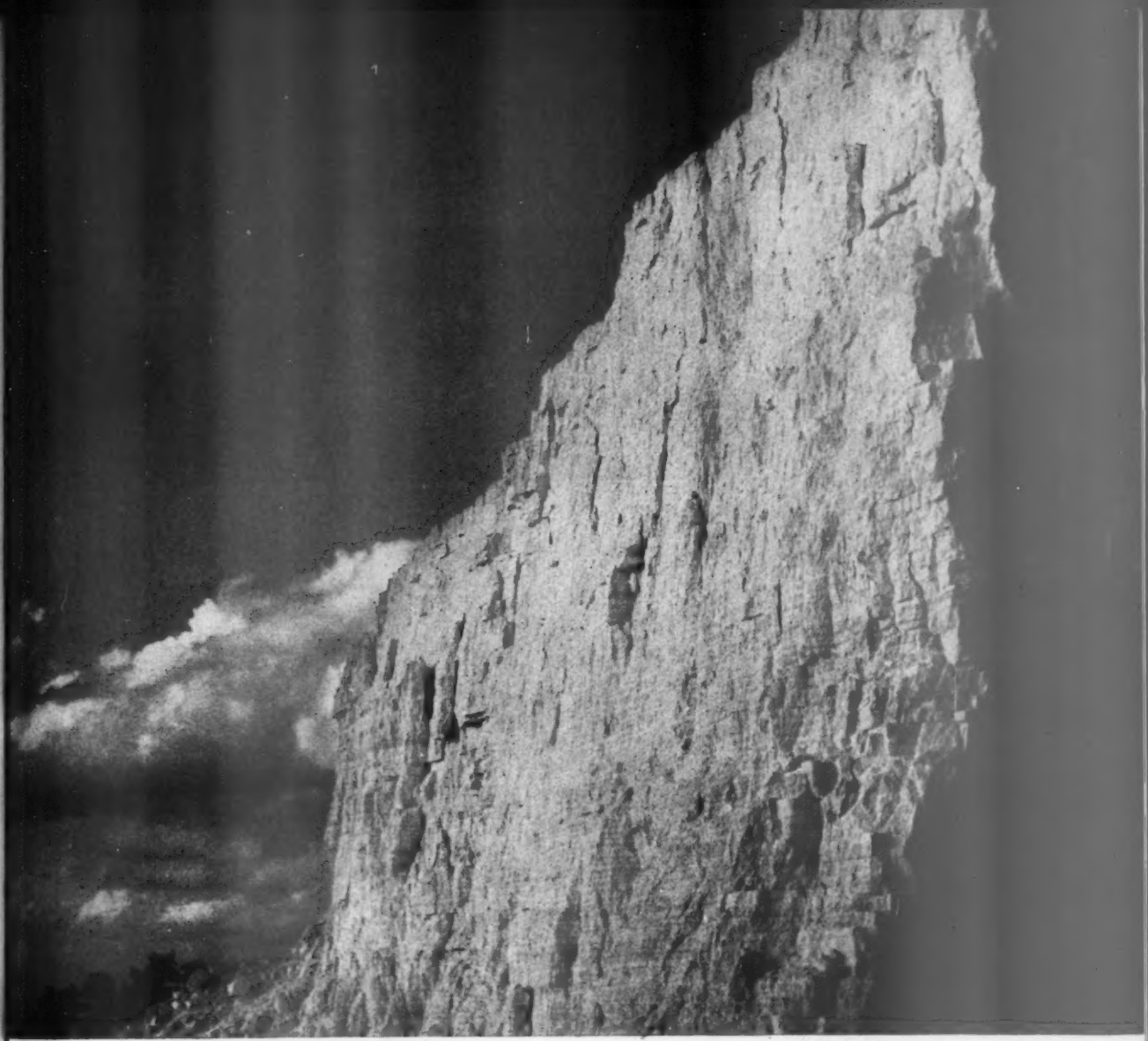
Net farm income so far this year is some 16% below the 1951 peak, and will probably end up some 5%-6% under last year. The prices that farmers receive are down more than 20% from 1951, and will probably decline even further in the face of huge surpluses and the new flexible-price support program. And farmers are finding it harder to hang on to their money; in 1953 they retained only 36½¢ of each dollar as net income, the lowest mark since 1932.

• **Rising Costs**—As farm operators retrench in face of slipping incomes, they have found their costs at near-record levels. In June, wholesale prices of farm machinery were 13% above the June level in 1950—a peak earnings year for many equipment makers—and prices for tractors, combines, and other equipment were the highest in history. Partly as a result of the squeeze between income and prices, farmers have been spending less than 8% of their cash income for farm machinery. The figure was 10% three years ago.

Still, farmers aren't poor even with the inroads of the new price support programs, drought, acreage controls, and slackening demand for farm goods. The value of farm assets is off from last year, and well below postwar highs, but it is still a hefty $160-billion. And for the first time in 10 years the uptrend of debt other than real estate has been broken with a 4% drop for the year ended July 1, 1954.

• **Expansion**—In a sense, the farm equipment makers are in trouble today because they grew so fast in the years just after the war. Farm labor was expensive then, and machinery makers roared into peacetime production with all sorts of labor-saving equipment. A few years later, when increasing crop surpluses brought acreage controls, machines were in demand to get more production out of a smaller area.

The sales of tractors, harvesters and combines of all types, balers, plows, and most other equipment have slowed considerably since 1951. Sales of com-



Mathieson Sulphur: *from waste, a pile of gold*

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UNIQUE CONSTRUCTION USED AT ATOMIC TEST GROUNDS

Holmes & Narver, Inc., Engineers and Constructors for the Atomic Energy Commission's Pacific Proving Grounds at Eniwetok, announces to industry unique techniques employed in developing a coral concrete of comparable strength to that used for construction in the United States.

Atolls, which are composed entirely of coral, are without fresh water and rock aggregates normally used in concrete mixing. Distilling sea water and transporting rocks over thousands of miles of ocean were too costly, even for a project of this importance.

Conventional construction practices dictated that structurally strong concrete could only be made from fresh water and the usual rock aggregates.

Accustomed by twenty years of industrial engineering and construction to think in terms of maximum economy, Holmes & Narver technicians instituted controlled research which ultimately produced concrete of strength equivalent to any comparable building requirements in industry. This was accomplished by substituting coral for rock and sea water for fresh water.

This achievement has been commended as a dramatic example of engineering originality and efficient construction control as applied to a specific local problem.

Full scope of the activities of this engineer-constructor organization is summarized in the Holmes & Narver Qualification Record, available to qualified executives.

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ENGINEERS-CONSTRUCTORS

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bines, which racked up the greatest postwar gains, have been way off this year. For the five companies with October year-ends listed in the table (page 59), nine-month sales had declined 21% from the 1953 mark, and the final quarter probably won't alter that figure much.

Defense business, which bolstered large as well as small companies over the last two years when farm buying was slowing up, has been cut back, although it still constitutes a big share of sales for Oliver Corp. and Minneapolis-Moline.

• **Long-Term**—Most farm machinery makers aren't nearly so pessimistic about the long-term outlook as they are about the next couple of years. Right now, they're hammering at the replacement market, and replacement parts are generally high-profit items compared with a whole new machine. International Harvester, in an effort to boost its parts sales and help its dealers meet heavy competition from wholesalers, is offering dealers a rebate on some 60,000 standard parts wherever the dealer has to cut his price to compete (see page 43). Other makers are stressing new models, lighter-weight machinery that can handle greater loads, and trying to sell the farmer on two tractors where today he has one. Most companies are liberalizing trade-in allowances and cash discounts, and there has been a revival in sales of second-hand machines.

The big companies have partially eased the loss of farm orders by getting into other lines. International Harvester, the biggest producer of tractors and farm implements, gets 25% of its sales dollar from truck sales, nearly 4% from refrigerators and equipment, and over 3% from steel, pig iron, and coke sales. Deere & Co., the second largest producer, has just opened a $20-million fertilizer plant in Pryor, Okla.

Long-term, farm machinery manufacturers figure these factors are working in their favor:

• Population growth, and continuing upgrading of income for low and middle income families should maintain a steadily growing demand for agricultural products.

• The trend toward more meat and dairy production should cut down on heavy surpluses of grain, and dovetail nicely with a rise in the general income level with its attendant swing to a meat diet.

• Agricultural exports should rise. The McGraw-Hill Dept. of Economics reports that the latest agricultural export figures show a smaller volume than in 1929, but that removal of import quotas plus more dollars available to foreign buyers should spark an upswing.

A structural honeycomb product that is GUARANTEED!

Here are the reasons why Douglas can guarantee **AIRCOMB*** *for structural purposes:*

❶ Rigid manufacturing control to insure exact adherence to engineering specifications.

❷ Automatic patented machinery to provide the identity in cell size that insures uniformity of strength throughout the AIRCOMB core of any structure.

❸ A laboratory and test program conducted by both the Douglas Aircraft Company and outside agencies to determine and prove the exact values of AIRCOMB.

❹ Experience in use which has proved that AIRCOMB structures meet all specifications under the most severe conditions. Douglas has produced more honeycomb for structural panels than all other manufacturers combined.

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Engineering and design assistance is available from the Douglas Aircomb Division on how to adapt this strong, lightweight structural material to your needs.

*Other paper honeycomb products should not be assumed to have the qualities of AIRCOMB, since AIRCOMB is manufactured under a special, patented process.

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Cut costs like others with Thilco "Imagineered" protective papers

FOR EXAMPLE: An expendable Thilco paper reinforced with steel strips replaces wood boards inside doorways of railroad grain cars. Saving: 75% — plus lower installation and storage costs.

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Are you paying too much for your wrapping and packaging? Can it be done better for the same or less cost?

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There's a grade or type for most any kind of protection required — including waterproofs, moisture-proofs and grease-proofs. All can also be Print-Decorated for product identity and advertising. Most are made up to 10 ft. wide without lap or seam.

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It tells of savings made by other companies like your own. Write on your company letterhead today—and put some of these cost control ideas to work for you.

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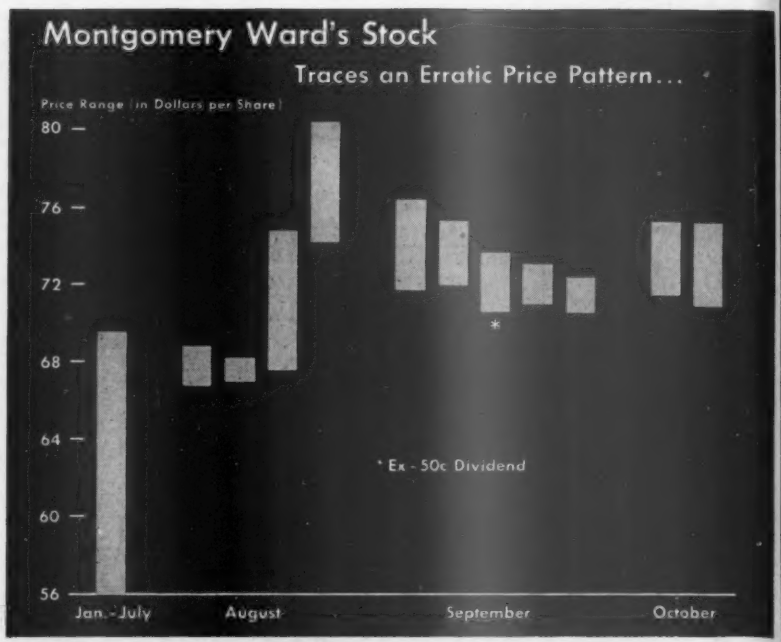
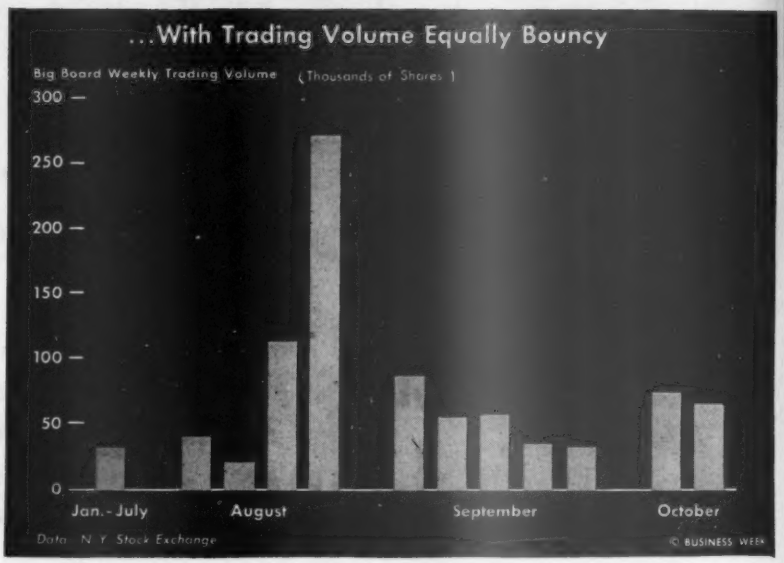




... As Wolfson Buys for Control

If you've wondered what's happened to Montgomery Ward stock since 42-year-old Louis E. Wolfson started his much publicized campaign to wrest control of the company from Sewell Avery, its cagey octogenarian chairman (BW—Oct.2'54,p172), then take a look at the charts above.

What they indicate generally is this:

The move to make Ward part and parcel of the fast-growing Wolfson industrial empire has boomed brokerage receipts of New York Stock Exchange members. Up to now however, it hasn't proved quite so profitable for old time Ward stockholders—or for the many newcomers lately speculating with Wolfson, Florida's Fabulous Junkman—as many may have imagined.

Last week the "invasion group," according to Wolfson's financial adviser, Alexander Rittmaster, held some 500,000 shares of Ward common. That's about 7½% of all the voting preferred and common stock the company has outstanding. Rittmaster says most of these holdings were acquired via purchases made on the Big Board.

• **Backing**—This claim is pretty well confirmed by the sharp increase disclosed in Big Board trading in Ward common since Wolfson announced in

1879-1954 DIAMOND JUBILEE OF THE FIRST INCANDESCENT LIGHT

Oil for Edison's Magic Lamp—

and for the Power Plants that Light America's Cities Today!

SEVENTY-FIVE years ago, when the incandescent lamp was born, Thomas Edison relied on a Socony-Vacuum oil to protect the generating equipment that provided the electricity. Today, to commemorate the diamond jubilee of light, Edison's original equipment has been re-activated at the Henry Ford Museum and Greenfield Village near Detroit. And once again a Socony-Vacuum oil has been chosen to protect it.

There is good reason for this choice. Socony-Vacuum lubricants for power plants have been the standard of quality for over 75 years. In fact, more turbines of 5,000 kw and over are lubricated by Socony-Vacuum than by any other oil company.

We are proud that, during these past 75 years, we were able to play a part in bringing the magic of Edison's lamp—and of electricity—to people throughout the world.

SOCONY-VACUUM

SOCONY-VACUUM OIL COMPANY, INC.

and Affiliates:

MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION

Vacuum-Formed

Blister-type package by
Vacu-Form Corp. of America,
Brooklyn, N. Y.

packages in Celanese* Acetate

the fastest growing idea since transparent films

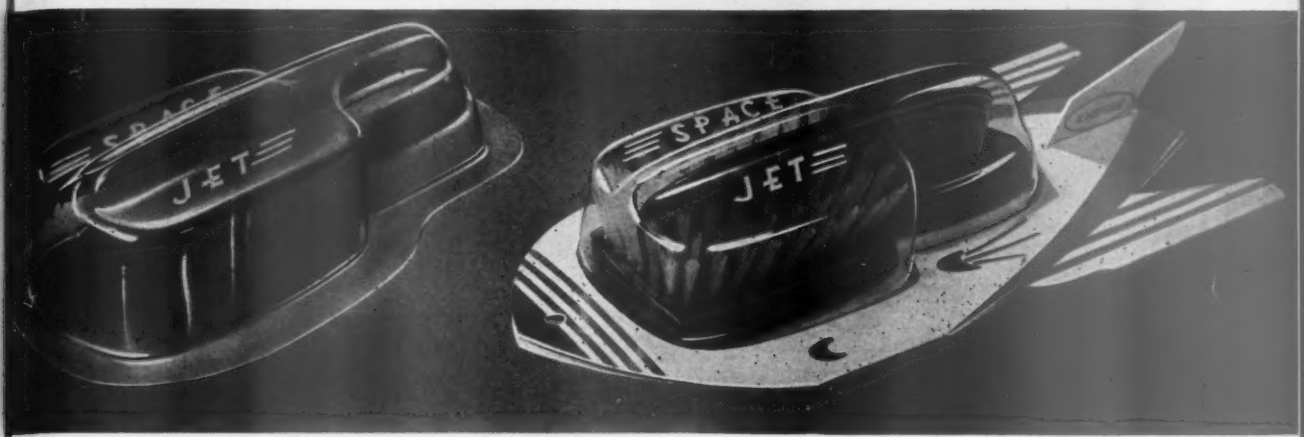
Flexible design at low cost—in packaging hardware, jewelry, personal goods, toys and hundreds of other products.

Two-part pill box for Schering, by
Plastic Artisans, Inc., White Plains, N. Y.

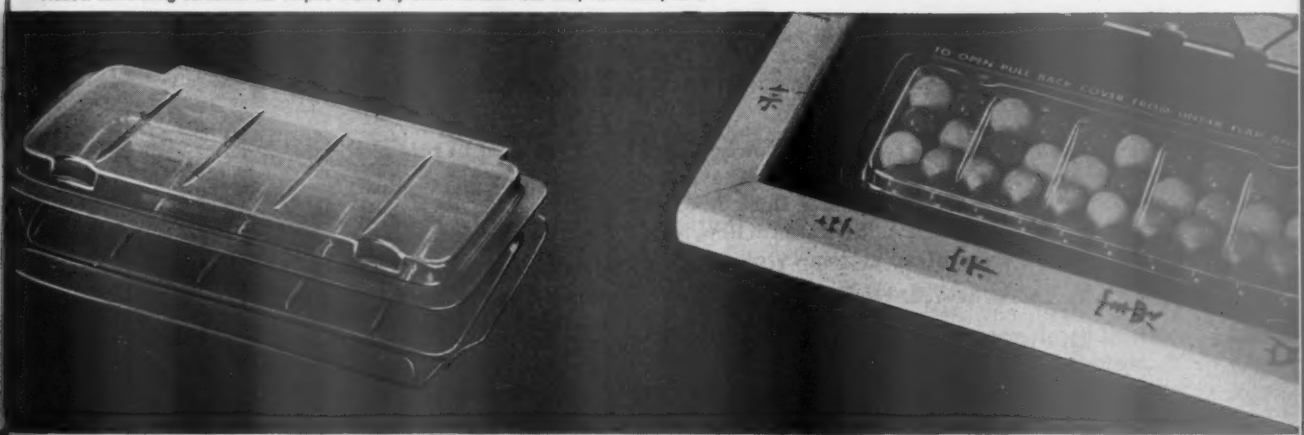
Capsule enclosure for Squibb Division, Olin Mathieson Chemical Corporation, by Mason-Keller Corporation, Roseland, N. J.

Sample enclosure for Coty, by
Ve-Alite Plastic Corp., Brooklyn, N. Y.

Two-part display container (17" x 10") for a variety of products. Developed by Plaxall, Inc., Long Island City, N. Y.



Product-conforming container for Empire Brush, by Shaw Randall Co. Inc., Pawtucket, R. I.



One-piece Chinese checker box incorporating spring hinge and clasp—by Western Coil & Electrical Co., Racine, Wisc.

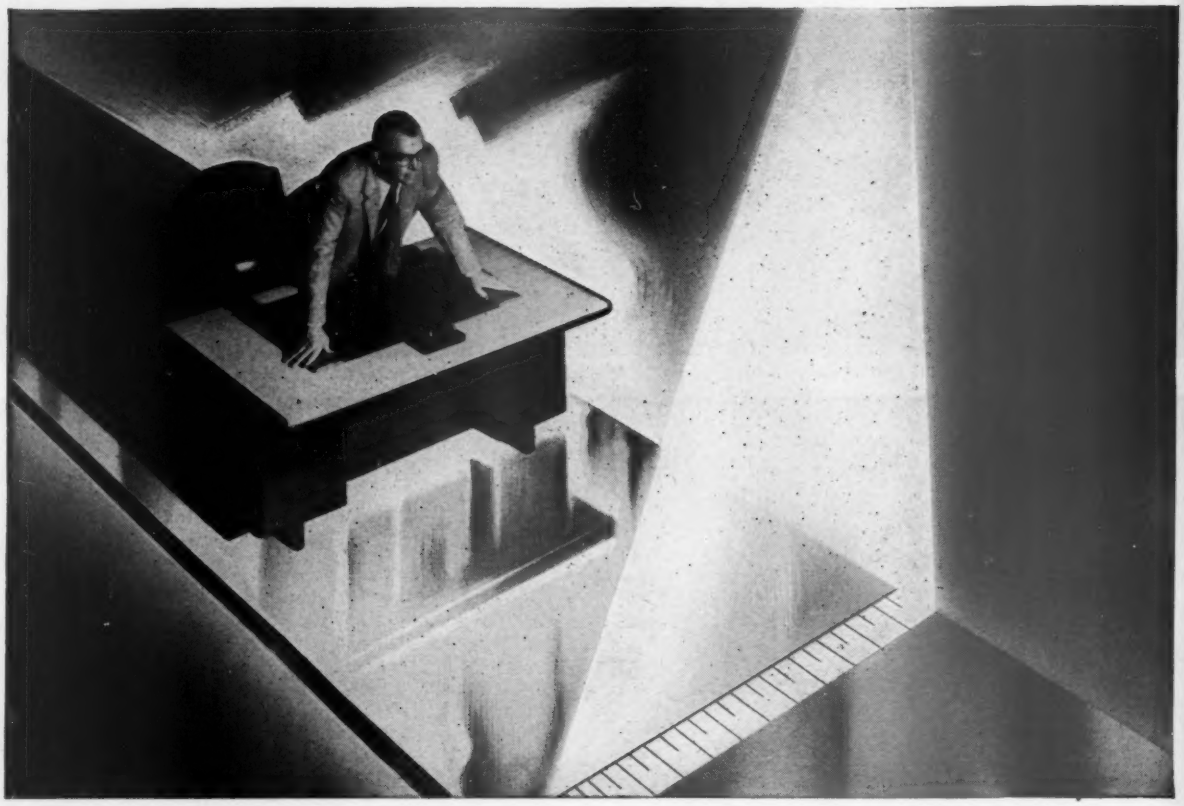
Double your sale chances with packaging that dramatizes your product!

Vacuum-forming is a new packaging method that is built for short and long runs. Using Celanese transparent acetate sheet, the vacuum-formed package gives your product the visibility it needs in today's competitive market. It makes necessities look like luxuries, and a fair price look like a bargain.

Celanese Product Development Staff can tell you more about the possibilities of this fastest growing packaging idea . . . estimate probable cost, and put you in touch with fabricators who specialize in vacuum-formed merchandise. Write or call Celanese Corporation of America, Plastics Division, Dept. 229-J, 290 Ferry Street, Newark 5, N. J. Canadian affiliate, Canadian Chemical Company Ltd., Montreal and Toronto.

Celanese* PLASTICS

*Reg. U. S. Pat. Off.



YOU CAN SELL MORE OF THE STEEL YOU BUY
because of an infrared yardstick

● You end up with less scrap, when you buy steel that's been held to closer tolerances. That's the advantage of this beam of infrared light. It keeps continuous check on the width of steel at Republic, reducing the scrap in our customers' plants.

This is a new device. Only Republic has it.

It's one of many such measuring devices utilizing the newest technologies—electronic weighing, radioactive isotopic control, ultrasonic detection—all of them the implements of a unique quality control program.

Republic is the only steel company with a completely integrated quality-control staff reporting directly to top management. Not a part of inspection, nor metallurgy, nor process control, but a department on its own.

The result of this aggressive quality control is more than scrap reduction. It results also in a saving of man-hours and downtime for our customers. Quality control is part of . . .

REPUBLIC'S 3-STEP SERVICE TO STEEL USERS:

1 **Making the finest steels possible, in the world's widest range;**

2 **Recommending to you the most exact specification to suit your needs (because we have this wide range);**

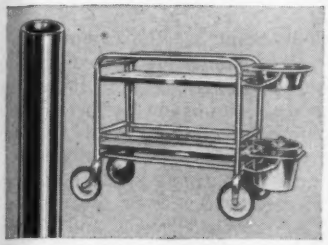
3 **Following up with metallurgical field service to insure your greatest benefit from the use of Republic steels.**

REPUBLIC STEEL

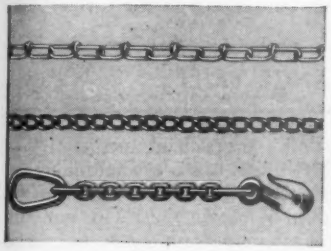
GENERAL OFFICES • CLEVELAND 1, OHIO

The REPUBLIC name is now borne by thousands of steels and steel products.

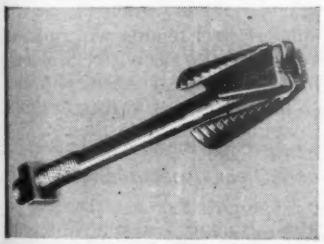
Do you know these?



MECHANICAL TUBING in a wide variety of shapes, sizes and gauges –and in carbon or stainless steel. Republic can produce your fabricated tubular parts, too, saving you equipment cost and plant space.



CHAIN for all purposes from the heaviest industrial tasks down to small bead-pattern chain is made by Republic's *Round* Chain Division. Tire chains for all types of vehicles, too.



MINE ROOF BOLTS are among the fifteen million fasteners which are Republic's daily capacity. These bolts are inserted in mine roofs to help prevent roof-fall accidents and increase mine safety.

REPUBLIC STEEL

WORLD'S WIDEST RANGE OF STANDARD STEELS AND STEEL PRODUCTS

midsummer that he was out to unseat Avery. In the first seven months of this year trading in Ward common approximated some 893,000 shares—or an average weekly volume of around 30,000 shares. Since July, however, such transactions—despite two slow weeks in late August—have involved close to 850,000 shares. This means that in just 11 weeks only some 43,000-odd less shares were traded than in the seven preceding months. That figures up to around 76,000 shares weekly. On one occasion weekly trading actually toted up to 270,800 shares, on another to over 112,000 shares.

The price action of Ward common, however, hasn't matched the post-July zoom seen in the trading of such shares.

• **Early Scoring**—True enough, mid-August did see the shares at an $80.37 price level, as against an earlier low for the year of $56. But Wolfson's buying wasn't responsible for as much of this $24.37 price gain as you might think. That low was set in early January. By the end of July, the stock had moved up on its own to $68.50. Thus, some $12.50—or over half the gain in question—was actually scored before Wolfson's buying really became a market factor.

Even though the first three weeks of Wolfson's buying did send the issue kiting almost $13, profit taking soon started pinching this gain.

Just a week after the 1954 high was set, for instance, shares were selling on the Big Board at $71.75—some $8 less than the high. As last week closed (seven weeks later), the issue was still available at approximately the same figure.

• **The Pitch**—What's the significance of this lackadaisical price showing at a time when Wolfson interests were acknowledgedly acquiring a sizable interest in Montgomery Ward via open market purchases of its stock? Says one Wall Streeter: It signifies smart buying on the part of Big Board members charged with executing Wolfson's purchase orders. According to rumor, Wall Street's Merrill Lynch, Pierce, Fenner & Beane and A. M. Kidder & Co. have played prominent roles in such buying operations.

• **Doubters**—More cynical Streeters say the reason the stock hasn't moved up sharply under the stimulus the Wolfson group has provided is due to something very different: a growing willingness of many old-time Ward stockholders—after mulling over the control battle—to bail out of the situation.

At no time since Wolfson's buying spree, say the cynics, has there been any shortage of stock offerings. Thus, large purchases have almost invariably been possible without Wolfson's group having to "bid up" for shares.

Confirming their view, cynics point to a remark of Wolfson's last week. On Oct. 11, according to Wolfson, his group acquired 14,100 shares of Ward common, or 76% of all 18,700 shares changing ownership that day. Yet the same day saw such buying pressure actually hike the price of the issue only 25¢ a share.

• **Rumors**—Who's selling the shares? Quite a few former big holders, Wall Street guesses, including some of the investment trusts. There are rumors that some selling has been traced to interests closely associated with Avery himself. Street conservatives, however, don't put much confidence in such guesses. The reason: Too many similar reports have been emanating from pro-Wolfson quarters.

Up to this week, the Wolfson group had not been successful in persuading Sewell Avery to open up Ward's stockholder records for their inspection. But last Monday, court action finally started in New York to force the company to give Wolfson interests a chance to examine such books. And as soon as this suit was filed, Ward's attorneys agreed to deliver to the committee a list of the company's stockholders.

Railroads' Joint Move Sets Off Merger Talk

Wall Street is again busy talking up the possibility of a merger of the Chicago, Milwaukee, St. Paul & Pacific RR and the Chicago & North Western Ry. Some financial men found a strong hint of such a move at some future date in last week's joint announcement that the two roads are about to get together in a study of ways to cut costs.

The current situation of both roads, and their need for some action to reverse the downtrend, gave an added fillip to the rumors. Despite a drastic scaling-down of their capital structures in reorganizations effected in 1945, business has not been good for either of them recently, and thus far this year both have operated in the red.

• **Economies**—Last week's announcement came from Milwaukee Chmn. Leo T. Crowley and North Western Chmn. R. L. Williams. It said the roads will soon name a joint committee of directors to make a study "looking toward economies which may be realized through coordinating traffic, operating, maintenance, and other departments."

The tracks of both run out of Chicago through the Middle West. They provide rail service for many of the same parts of Wisconsin, Minnesota, Iowa, and South Dakota. Both, for example, run passenger and freight trains from Chicago to Minneapolis

Why Men in the SUGAR *Business*

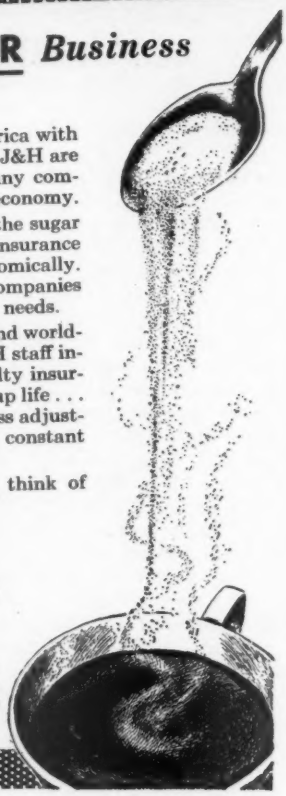
Rely on J&H

The vital sugar industry supplies all America with energy to carry on its work and play. We at J&H are proud to serve as insurance brokers for many companies in this important part of the country's economy.

An understanding of the complexities of the sugar business enables us to meet that industry's insurance requirements quickly, efficiently, and economically. And continuing service to leading sugar companies keeps us in touch with their ever-changing needs.

Whatever your business, our knowledge and world-wide facilities can be useful to you. The J&H staff includes specialists in marine, fire, and casualty insurance . . . employee benefit planning and group life . . . safety and fire protection engineering . . . loss adjustment and rate analysis. And we maintain constant contact with world insurance markets.

When you think of *business insurance*, think of *J&H*. It costs no more to have the best.



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Employee Benefit Plan Consultants

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"A HIDE-AWAY" ...at home!

It's flowers, fresh vegetables and recreation all year 'round. An Orlyt greenhouse is a cozy sunshine spot all your own. Costs less than buildings of usual construction. Choice of bright aluminum or beautiful California redwood. Maintenance-free. Easy-to-put-up, anywhere, any time.

$15.00 per Month Buys a 10 by 11 ft. Orlyt—$434.

No down payment. Prefabricated, all ready to put on your foundation and join to your home. **Others from $339—$12.00 per month.** *Automatic heat and ventilation available. Send for Catalog No. 3-0-2.

*Optional equipment

Orlyt ALUMINUM GREENHOUSE

Dealers Wanted

IRVINGTON, N. Y. • DES PLAINES, ILL. St. Catharines, Ont. **Lord & Burnham**

and St. Paul, and to Milwaukee and Madison, Wis.

• **Big Ones**—The Milwaukee, which goes on to Seattle and Portland in the Pacific Northwest, has main line trackage totaling 10,600 mi. in 11 states. The North Western, which provides Union Pacific with an entrance into the Chicago area, has 7,800 mi. in nine states.

• **Prelude**—Some see the coming joint study of economies as a prelude to possible petitions to the Interstate Commerce Commission for permission to set up pooling arrangements to split traffic and revenues, rather than as a forerunner of outright merger. In one such arrangement now existing, Union Pacific, Northern Pacific, and Great Northern "pool" passenger service between Seattle and Portland.

But merger rumors won't down. Wall Streeters remember that a Milwaukee-North Western merger was frequently discussed informally while both were in bankruptcy in the early 1940s.

FINANCE BRIEFS

New York's largest bank merger (BW—Aug.21'54,p30) was overwhelmingly approved last week by stockholders of the Chemical Bank & Trust Co. and the Corn Exchange Bank Trust Co. The new bank, now operating as the Chemical Corn Exchange Bank, ranks as the nation's sixth largest. Assets total $2.9-billion, deposits $2.6-billion, capital funds $187.7-million.

•

Third-quarter steel reports will provide unhappy reading for many stockholders. Early-bird operating statements for the period show these year-to-year declines in net earnings: Republic Steel 27%, Granite City Steel 54%, Kaiser Steel 71%, Allegheny Ludlum Steel 73%.

•

Prudential Insurance Co. is buying only enough common stocks to maintain such holdings at about 1% of total assets. That was the word last week from Pres. Carrol M. Shanks. Prudential assets, he added, should total around $11.8-billion at the yearend, about $850-million above the end of 1953.

•

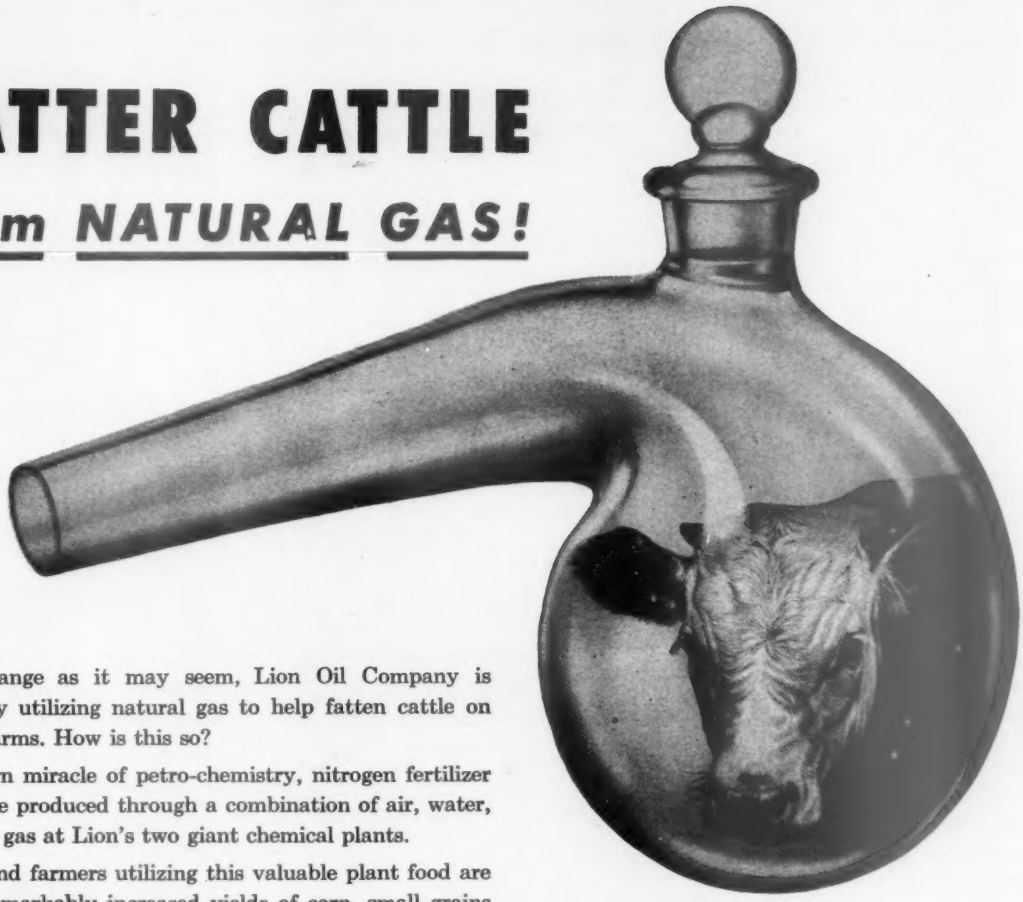
Commercial paper outstanding totaled $2.2-billion at the end of August, according to the New York Federal Reserve Bank. That's about 2% less than at the end of July, 10% above the figure a year earlier.

•

Chesapeake & Ohio Ry. has dropped at least temporarily its plan to refund $37.8-million outstanding 3⅞% bonds with new long-term obligations carrying a lower rate coupon.

FATTER CATTLE

from NATURAL GAS!



YES, strange as it may seem, Lion Oil Company is actually utilizing natural gas to help fatten cattle on American farms. How is this so?

By a modern miracle of petro-chemistry, nitrogen fertilizer materials are produced through a combination of air, water, and natural gas at Lion's two giant chemical plants.

Stockmen and farmers utilizing this valuable plant food are obtaining remarkably increased yields of corn, small grains and pasture grasses. Because of this economical source of stock feed, the Nation is building larger and better beef cattle, more productive dairy herds, and finer, fatter hogs.

Thus, gas taken from the ground is used to return nitrogen to the depleted soil, replenishing its life and maintaining agriculture in its important place in our economy.

Scientific research, bringing to light the amazingly rich store of organic chemicals hidden within crude petroleum and natural gas, has created a Petro-chemical Industry that is leading the way to the attainment of better things for better living.

Still more and better products are yet to come from the test tubes of Lion's research laboratories. At this moment, important projects are being studied, developed, tested and tried—test-tube samples of tomorrow!

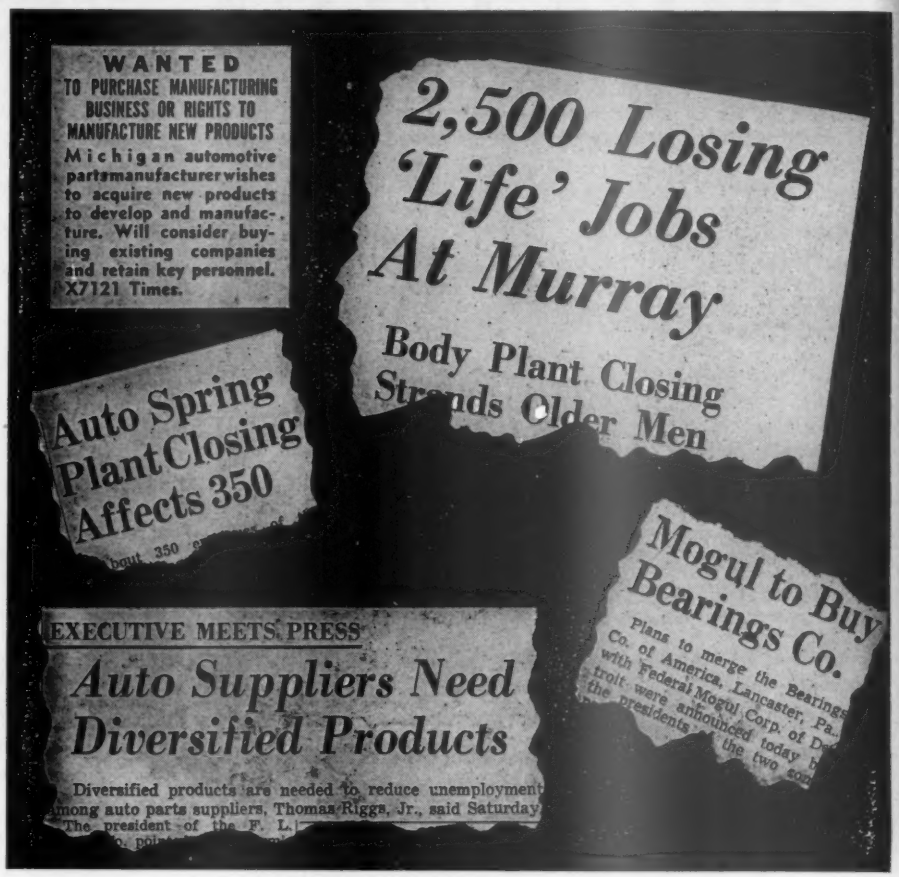
KEEP YOUR EYE ON...

LION OIL COMPANY

LION

EL DORADO
ARKANSAS

This advertisement first appeared in 1950. It is just as timely today, and is being repeated with only one change—the original advertisement mentioned one giant chemical plant, and now there are two. The new Barton Plant, recently completed, and built to meet increasing needs, is located on the Mississippi River near New Orleans.


WANTED
TO PURCHASE MANUFACTURING BUSINESS OR RIGHTS TO MANUFACTURE NEW PRODUCTS
Michigan automotive parts manufacturer wishes to acquire new products to develop and manufacture. Will consider buying existing companies and retain key personnel. X7121 Times.
2,500 Losing 'Life' Jobs At Murray
Body Plant Closing Strands Older Men
Auto Spring Plant Closing Affects 350
Mogul to Buy Bearings Co.
EXECUTIVE MEETS PRESS
Auto Suppliers Need Diversified Products
Diversified products are needed to reduce unemployment among auto parts suppliers, Thomas Riggs, Jr., said Saturday

The automotive supply industry is in a jam. Companies are selling out or looking for new products to manufacture. Sales of 1955 cars hold the key to how painfully the . . .

Auto Suppliers Take the Bumps

The 1955 autos that are rolling into dealers' showrooms hold the future of more business concerns than the car manufacturers. The cars are just as big a gamble for more than a thousand companies who are loosely called "automotive suppliers."

The clippings above tell what has been happening to manufacturers of original equipment and original parts for autos—as distinguished from those who make accessories and replacement parts. Will it go on happening? The suppliers won't know until they find out how the new models fare—the sales of an automotive supplier parallel the sales of his biggest customer.

The suppliers who were hit hardest this year are those that serve Chrysler and the "Little Three": American Motors, Kaiser-Willys, and Studebaker-Packard. Among the Big Three—General Motors, Ford, and Chrysler—the most dependent on outside suppliers has always been Chrysler. With Chrysler's sales off nearly 35% this year, you can't blame a Chrysler supplier for chewing his nails while he waits to see how the new models move.

• **Variables**—Even high sales by his major customer don't automatically guarantee good business for the maker of original equipment or parts. The supplier knows there are other factors, and the headlines above reflect his uneasiness. He knows that even some Ford and General Motors vendors are finding the going tricky, despite the fact that those two companies have so greatly outrun their competition.

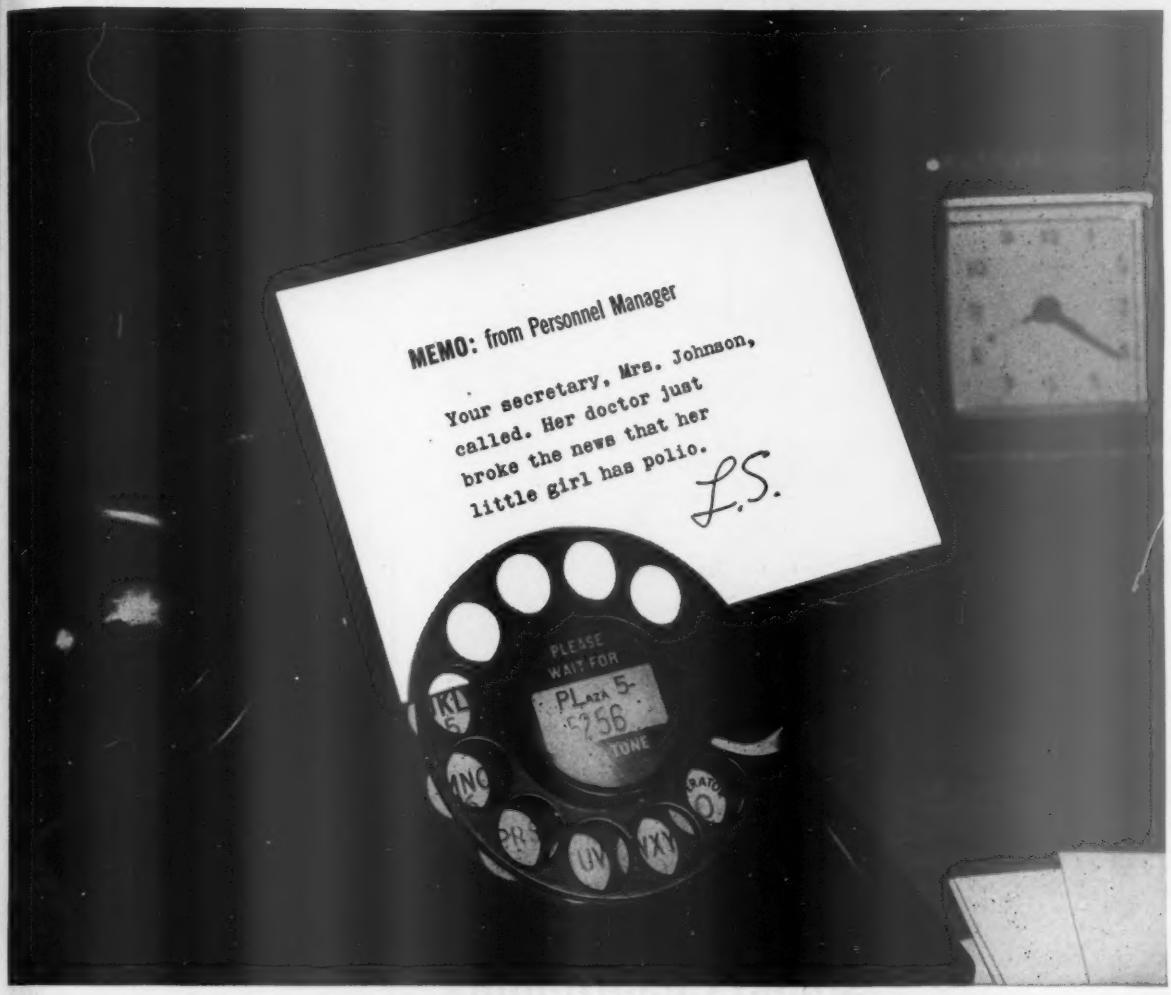
Along with the competitive fight, auto suppliers worry over three other major factors: (1) technological developments, (2) changing public tastes, and (3) the trend toward integration of production by the car assemblers.

• **Turmoil**—These three factors assure that there will always be turmoil in the ranks of the suppliers. Even in 1950, the best sales year the auto industry ever had, companies drifted in and out of the auto equipment business. This year, probably the third best in history, the shifts in the suppliers' end of the business are more sweeping and dramatic than ever before.

I. Competition

A year ago, few people in the industry expected Chrysler sales to decline as sharply as they did. Even if they had foreseen trouble, it would have taken an exceptionally agile supplier to sidestep the falling sales curve. That's because of the way auto parts contracting is set up.

• **View Obscured**—Customarily, at the start of a model year an auto company lets a purchase requisition on a stated percentage of its full year's requirements for a particular item. This gives the supplier a rough fix on his own annual production, if he can estimate his customer's volume. Assume the model run


MEMO: from Personnel Manager
Your secretary, Mrs. Johnson, called. Her doctor just broke the news that her little girl has polio.
L.S.
PLEASE WAIT FOR
PLAZA 5-
2256
TONE

HOW YOU CAN HELP YOUR EMPLOYEES MEET MAJOR MEDICAL EXPENSES

Equitable offers management a way to lighten the burden of ruinous medical bills for its employees

A heart attack... cancer... a bad accident. These *can* happen to your employees and their families!

A prolonged illness or a serious accident can pile up staggering medical bills. As a result, an employee who returns to work deep in debt, may be distracted and worried — unable to keep his mind on his job.

The problem management faces

Modern management—in cases like this—is sympathetic and understanding... and aware of a fundamental obligation.

Equitable offers an answer: three basic Group Major Medical Expense Plans, any one of which can be adapted to your company's needs.

This type of protection is vital, *whether or not* your employees are now covered by the usual medical and hospitalization plans.

How the Equitable Plans work

These far-reaching Equitable Plans help your employees pay for costly major medical expenses — bills for physicians, surgeons, medicines, hospital, professional nursing care and other items that can quickly wipe out an employee's life savings.

The cost of this insurance is amazingly low compared to the protection it gives you and your employees.

Your Equitable Representative can help you bring to your employees —and to yourself—peace of mind. The Equitable also offers *Individual* Major Medical Expense Policies, for both you and your family.

THE

EQUITABLE

LIFE ASSURANCE SOCIETY OF THE U. S.

HOME OFFICE: 393 SEVENTH AVE., NEW YORK 1, N. Y.

with Gold Bond Sound Conditioning

YOUR remodeling money can do *twice* the job it's meant to do... *sound condition* as well as *add new good looks*...with a Gold Bond Acoustifibre ceiling. And the cost is little or no more than that of remodeling *without* the extra benefit of quiet!

Gold Bond Acoustifibre adds fresh, bright appearance to any room while it absorbs annoying, distracting sounds. The highly light-reflective tile surfaces are washable—and may be painted without affecting acoustical qualities.

Let your Gold Bond Acoustical Contractor help you plan your remodeling. He'll show you the *full* line of Gold Bond Acoustical Products and recommend the one that best fits your requirements. Look in the Yellow Pages of your phone book under "Acoustical Contractors" or mail this coupon today! National Gypsum Company, 325 Delaware Avenue, Buffalo 2, New York.

Gold Bond—America's COMPLETE Line of Sound Conditioning Materials

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Get sound comfort with Gold Bond ACOUSTICAL PRODUCTS

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Please send me without obligation:
☐ Free copy of "The Decibel"—12-page booklet picturing successful sound-conditioning jobs.
☐ Name of the nearest Gold Bond Acoustical Contractor.
Name .....
Address .....
City ..... County ..... State .....

begins in November. A month or so ahead of time, the supplier will get instructions to fabricate and deliver X number of units in November, and to fabricate and hold Y number of units in December. At the same time, the supplier will be given a "planning program" of anticipated needs for the following three months.

Thus, both the assembler and the parts manufacturer can look ahead five months. On the other hand, the anticipated needs are subject to being revised sharply, so in effect the supplier is guaranteed work for only two months. If his customer's auto sales slide fast, a supplier can be left with a large work force and high overhead that will eat him up before he has had a chance to beat the bushes for new work.

II. Technology

The hazard of a changing technology in the supplier's business can be met through his own efforts, but it takes constant research which even then is no warranty. Chrysler, for instance, is now making a power steering unit developed by its own engineers even though the supplier of its former unit was making continual improvements.

Or take the case of seat springs. Murray Corp. of America pioneered in flat zigzag springs. They were economical and easy to make, and Murray built up a large volume in the item. Then General Motors began making its own flat springs, on the basis of Murray's experience with the production advantages of this type of spring. Murray hasn't had any spring business for some time now.

Another example of the shifts due to technological improvement is the "ball-joint" front suspension used on Ford Motor Co. lines of cars. Thompson Products, Inc. (page 180) developed it and sold it to Ford, taking the Ford suspension business away from Pressed Metals of America, Inc. Along with the loss of Chevrolet front suspension work for 1955 models, this left Pressed Metals earlier this year wondering if it could remain in business.

III. Public Tastes

One of the worst dilemmas for a vendor is trying to predict what the public will buy. Suppose you had had a nice healthy business some years ago building two-passenger coupe bodies? That's a body style that has just about disappeared from the assembly lines—the public just doesn't want it in 1954. Or suppose you used to manufacture soft tops for convertibles?

• **Have to Gamble**—There is a long list of such items. If you are in the auto parts business and are offered a contract to build such a part, you have to take

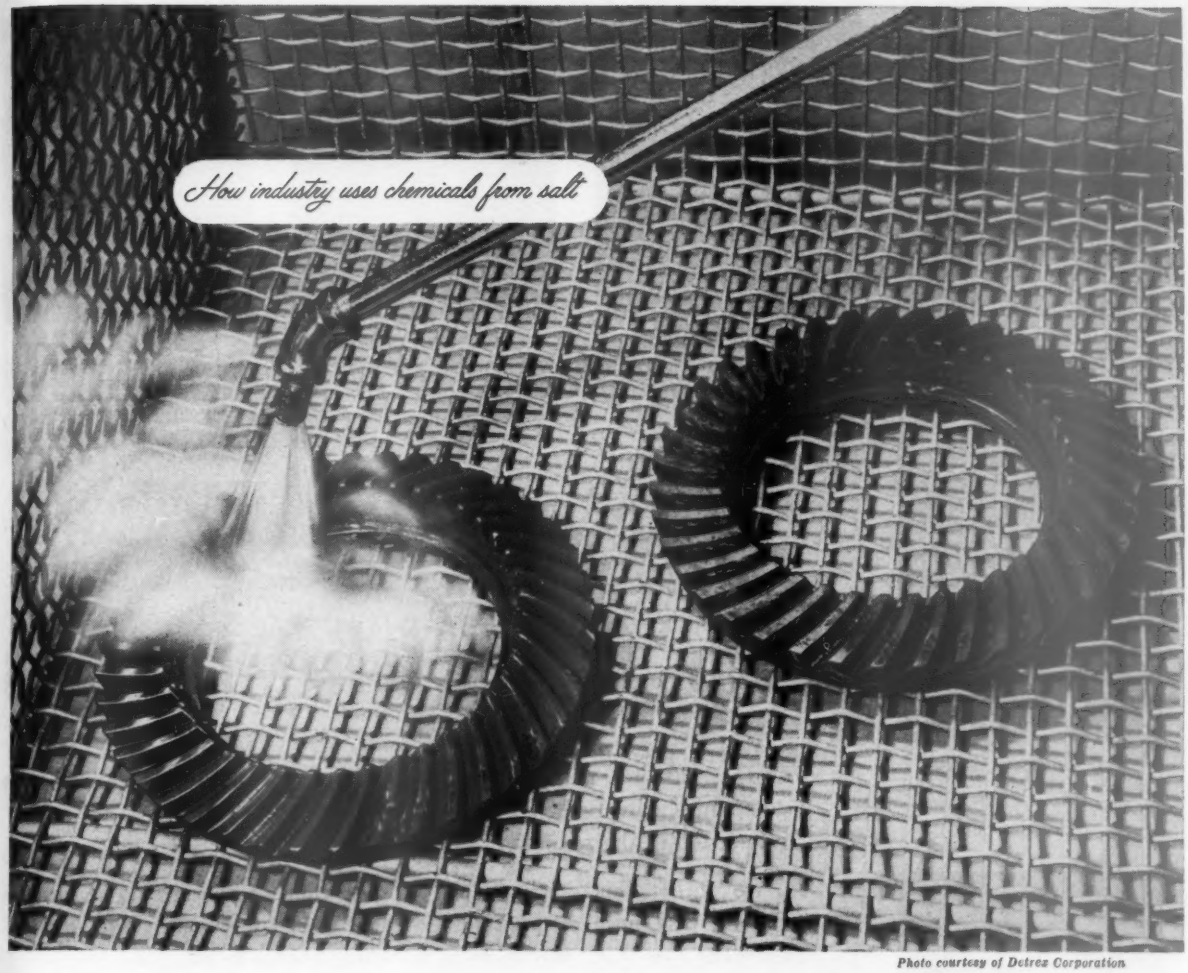

Photo courtesy of Detrex Corporation

Now they're drycleaning GEARS

The greasy gear at the left is dunked in a cloud of hot vapor. Instantly, grease starts to dissolve and slide off.

More vapor hisses gently from the spray lance—penetrating every recess.

In as little as 10 seconds, the gear is clean, warm, and dry—ready for the next stop on the production line.

No ordinary solvent, this. For one thing, it's safe—can't burn or explode. It's *heavy*—the vapors stay put and don't blow around or escape. It won't attack even the softest alloys.

It's called trichloroethylene. It's used by many industries for degreasing gears and other metal parts.

You can get this versatile solvent from Detrex Corporation. It's made by Hooker-Detrex Corp., a jointly-owned subsidiary of Hooker and Detrex.

Just one more example (there are hundreds) of how an industry (like yours, for instance) can call on us to help make a product or a process better.

We make nearly 100 chemicals regularly from *common salt*—one of the cheapest, most plentiful raw materials in the world. We also make them to order, to meet industrial needs.

In this case, it's cleaning gears. In your case, it might be—*you name it.*

If you'd like some ideas on how chemicals from salt may be useful to you, send for the free booklet, "From the Salt of the Earth." It lists Hooker products and processes. Write us at 21 Forty-seventh St., Niagara Falls, N. Y.

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

NIAGARA FALLS • TACOMA • MONTAGUE, MICH. • NEW YORK • CHICAGO • LOS ANGELES

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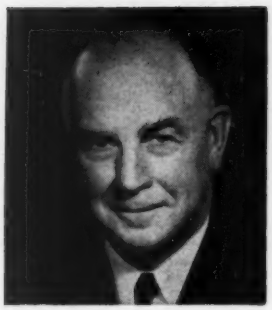
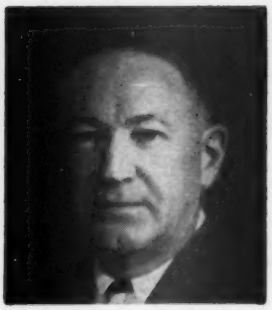
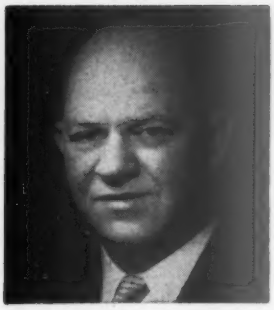


CLEO F. CRAIG
President of the American Telephone and Telegraph Company. Started with the Bell System as an *equipment man* in St. Louis in 1913.



ALLERTON F. BROOKS
President of The Southern New England Telephone Company. Started with Bell System as *engineer's assistant* in New Haven in 1911.



EDWIN M. CLARK
President of the Southwestern Bell Telephone Company. Started with the Bell System as an *installer* in New York in 1923.

SANFORD B. COUSINS
President of the Northwestern Bell Telephone Company. Started with the Bell System as a *traffic student* in New York in 1920.

WILLIAM A. HUGHES
President of the New Jersey Bell Telephone Company. Started with the Bell System as a *groundman* in Kansas City, Mo., in 1917.

WILLIAM V. KAHLER
President of the Illinois Bell Telephone Company. Started with the Bell System as an *engineering assistant* in New York in 1922.

Up from the Ranks

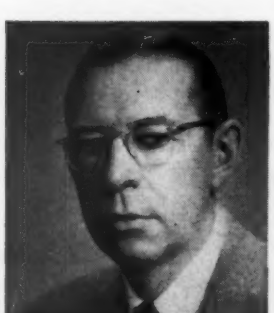
These are the presidents of the companies in the Bell System. They all started in the ranks.

Seventeen years ago the Bell System first published an advertisement like this. But there is a big difference today. Every one of the faces is new.

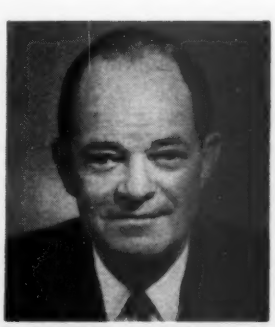
All of these presidents, like those before them, have had wide telephone experience—an average of 34 years in the Bell System and 18 years in upper management positions.

The Bell System is an up-from-the-ranks business and it aims to keep the opportunity for advancement open to all.

This has been true of the telephone business for many years and it is nowhere better illustrated than in the careers of the men who serve as presidents of Bell System companies.



WALTER K. KOCH
President of The Mountain States Telephone and Telegraph Co. Started with the Bell System as a *traffic student* in Denver in 1923.

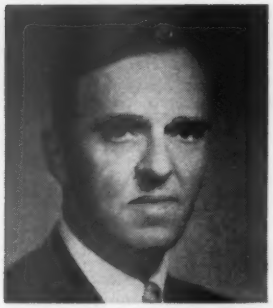


KEITH S. McHUGH
President of the New York Telephone Company. Started his telephone career with the Bell System as a *clerk* in New York in 1919.

JAMES B. MORRISON
President of The Chesapeake & Potomac Telephone Companies. Started with Bell System as *engineering assistant* in Washington in 1925.

CLIFTON W. PHALEN
President of the Michigan Bell Telephone Company. Started with the Bell System as a *lineman* in Syracuse in 1928.

WILFRED D. GILLEN
President of The Bell Telephone Company of Pennsylvania. Started with the Bell System as a *clerk* in Philadelphia in 1923.



JOHN A. GREENE
President of The Ohio Bell Telephone Company. Started with the Bell System as a *contract clerk* in Chicago in 1914.

HARRY S. HANNA
President of the Indiana Bell Telephone Company. Started with the Bell System as an *engineer* in Cleveland in 1922.

JOE E. HARRELL
President of the New England Telephone and Telegraph Company. Started with the Bell System as a *clerk* in Atlanta in 1913.

PRESIDENTS OF BELL SYSTEM COMPANIES AND THEIR FIRST JOBS

Name	Company	Date	Place of Start	First Pay	First Job
Cleo F. Craig	Amer. Tel. & Tel. Co.	1913	St. Louis	$15 a week	Equipment Man
Allerton F. Brooks	Southern New England Tel. Co.	1911	New Haven, Conn.	$12 a week	Engineer's Assistant
Edwin M. Clark	Southwestern Bell Tel. Co.	1923	New York	$30 a week	Installer
Sanford B. Cousins	Northwestern Bell Tel. Co.	1920	New York	$30 a week	Traffic Student
Wilfred D. Gillen	Bell Tel. Co. of Penna.	1923	Philadelphia	$27 a week	Clerk
John A. Greene	Ohio Bell Tel. Co.	1914	Chicago	$50 a month	Contract Clerk
Harry S. Hanna	Indiana Bell Tel. Co.	1922	Cleveland	$57 a week	Engineer
Joe E. Harrell	New England Tel. & Tel. Co.	1913	Atlanta	$14 a week	Clerk
William A. Hughes	New Jersey Bell Tel. Co.	1917	Kansas City, Mo.	$60 a month	Groundman
William V. Kahler	Illinois Bell Tel. Co.	1922	New York	$25 a week	Engineering Assistant
Frederick R. Kappel	Western Electric Co.	1924	Minneapolis	$25 a week	Groundman
Dr. Mervin J. Kelly	Bell Telephone Laboratories	1918	New York	$40 a week	Physicist
Walter K. Koch	Mountain States Tel. & Tel. Co.	1923	Denver	$100 a month	Traffic Student
Keith S. McHugh	New York Tel. Co.	1919	New York	$35 a week	Clerk
James B. Morrison	Chesapeake & Potomac Tel. Companies	1925	Washington, D.C.	$27 a week	Engineering Assistant
Clifton W. Phalen	Michigan Bell Tel. Co.	1928	Syracuse, N.Y.	$30 a week	Lineman
Mark R. Sullivan	Pacific Tel. & Tel. Co.	1912	San Francisco	$50 a month	Clerk
Fred J. Turner	Southern Bell Tel. & Tel. Co.	1907	Atlanta	$18 a month	Clerk
Charles E. Wampler	Wisconsin Telephone Co.	1929	Chicago	$130 a month	Traffic Student

FREDERICK R. KAPPEL
President of the Western Electric Company. Started with the Bell System as a *groundman* in Minneapolis in 1924.

DR. MERVIN J. KELLY
President of the Bell Telephone Laboratories. Started with the Bell System as a *physicist* in New York in 1918.

MARK R. SULLIVAN
President of The Pacific Telephone and Telegraph Company. Started with Bell System as a *clerk* in San Francisco in 1912.

FRED J. TURNER
President of the Southern Bell Telephone and Telegraph Co. Started with the Bell System as a *clerk* in Atlanta in 1907.

CHARLES E. WAMPLER
President of the Wisconsin Telephone Company. Started with the Bell System as a *traffic student* in Chicago in 1929.

BELL
TELEPHONE
SYSTEM

it because it will give you good volume—while it lasts. But in a year's time public tastes could change, your volume might be cut 50%, and you would face the decision of whether or not to hang on, hoping for another swing of the pendulum.

You could cut your work force and overhead back to the requirements of the new contract, or you could keep your workers and try to expand in different fields. In either case, you would be in a poor competitive position to bid on larger requirements the following year—and most auto supply contracts are year-to-year affairs.

Under such circumstances, why bother to try to stay in the auto business? Because auto work can be enormously profitable. Granting that the tax structure is different today, Detroit still remembers that the Dodge brothers founded their auto company with profits from selling engines to Ford (and from dividends from Ford stock). And one manufacturer of a windshield wiper has made more than a million dollars.

IV. Integration

One factor more than any other has impelled smart auto vendors to get out of the business entirely: the trend toward integration of auto production. As sales competition gets tougher, the car assemblers are buying less and building more, in the hope they can cut costs and get a better flow of materials and parts.

• **Suppliers' Argument**—Auto parts and equipment vendors, even some who are dropping the business, will argue this point. They don't concede, for example, that a stamping division of a major company is necessarily any more efficient than an outside stamping plant. The vice-president of one former large supplier says, "We can make those parts cheaper and give better quality because they can put the screws on us as they wouldn't dare do right in their own company."

This man sees no point to the present large-scale integration programs of Ford and Chrysler, for example. He recalls that at one time Ford built practically everything for its cars—including tires and batteries—and then decided it wasn't economical.

• **Assemblers' Argument**—However, Ford and Chrysler people will cite economic reasons for what they are doing. While they give out no cost breakdowns, they say their programs are paying off.

There is one other spur to the integration programs: The necessity of uninterrupted delivery. Ford, in particular, remembers with sorrow the strikes in outside suppliers' plants that cost the company hundreds of thousands of

TRUCKS

AUTOS

FURNITURE

START THINKING BIG ABOUT REINFORCED PLASTICS

BOATS

APPLIANCE HOUSINGS

VENTILATING STACKS

Large-scale structures of reinforced plastics are in everyday use right now, in auto and truck bodies, architectural panels, appliance housings, chemical tanks, ventilating stacks, and furniture.

Easy fabrication is one reason for the fast growth of reinforced plastics made from glass fibers and BAKELITE Resins. If damaged in use, they can be quickly repaired.

Reinforced plastics can give your product many other advantages unique to plastics. It will have inherent corrosion resistance, as well as thermal and electrical insulating properties. Usually there's a notable weight saving over conventional materials. Mechanical strength is outstanding, thanks to the glass fiber—BAKELITE resin construction.

Make sure that your product has all the production, sales, and service features that reinforced plastics can provide. Bakelite Company offers the largest variety of materials to help you get the necessary properties... over a dozen different polyesters, as well as epoxies, epoxy-phenolics, and phenolics. Its research and development teams are the biggest in the industry and they are at your service. Write Dept. ZP-61.

BAKELITE
TRADE-MARK
RESINS
FOR REINFORCED PLASTICS

TRADE MARK

BAKELITE COMPANY
A Division of
Union Carbide and Carbon Corporation
UCC
30 East 42nd Street, New York 17, N. Y.
In Canada: Bakelite Company
Division of Union Carbide Canada Limited
Belleville, Ontario

BAKELITE COMPANY—YOUR ONE SOURCE FOR POLYESTER, PHENOLIC, EPOXY, AND EPOXY-PHENOLIC RESINS FOR REINFORCED PLASTICS

Charles M. Neighbors, Advertising Manager, Babcock & Wilcox Co., and a SCIENTIFIC AMERICAN advertiser, asked us how other advertisers were using our publication. So we did the obvious. We asked a few of them . . .

"What's the job you assign to Scientific American in your advertising program?"

J. M. Smith, Manager of Marketing, Refractories Division, The Carborundum Company—"We use SCIENTIFIC AMERICAN to create interest and develop inquiries from Technical Management. This is an influential group in industry that we find increasingly difficult and costly to cultivate with salesmen alone."

Henry C. Silldorff, Board Chairman, G. M. Basford Co., Advertising—"We have SCIENTIFIC AMERICAN on many of our clients' lists. To get close to Technical Management, to start planting the seeds for a sale way back where the initial new product development and plant expansion begin, to pre-sell, long before the buying decision comes up."

Herbert S. Spencer, Advertising Manager, Durez Plastics & Chemicals, Inc.—"We have been using SCIENTIFIC AMERICAN to find new outlets for phenolic molding compounds and resins. The responsiveness of SCIENTIFIC AMERICAN's audience is highly indicative to us of how successfully we are reaching Technical Management in many markets."

(*Advertisement*)

units in the first half of 1953. Of course, there is no guarantee that a car assembly company can do any better than an outside vendor in warding off such production interruptions as strikes, fires, and floods. The only point that matters to suppliers is that the car manufacturer thinks it can.

V. Courses of Action

Just how much these four factors have cut into total suppliers' sales this year no one knows. To begin with, the number of companies supplying auto assemblers is hazy. And a total sales figure is impossible to calculate because some of the largest supplies—such as Bendix, Thompson, Borg-Warner—are also major manufacturers of nonautomotive products.

To meet the constant threat of those four factors, many men in the auto supply business have taken one of three courses: A few have left the business or closed their plants; some have merged with other companies; far more have shifted to other fields.

• **Diversifying**—An ad in Detroit newspapers recently typified the latter group. "Wanted," it read, "to purchase manufacturing business or rights to manufacture new products. Michigan automotive parts manufacturer wishes to acquire new products to develop and manufacture. Will consider buying existing companies and retain key personnel."

Murray Corp. is a good example of a company that could place such an ad. Murray once was one of the largest body manufacturers, along with Briggs Mfg. Co. and Budd Co. Budd is now the only one with any large amount of body work, and the industry wonders how long it will last. Briggs was sold a year ago to Chrysler Corp. (BW—Oct. 31'53,p32).

• **Results**—W. N. Harris, vice-president of the automotive division of Murray, says his company saw the trend right after the end of the war and started at that time to diversify. Once, Murray's income was overwhelmingly tied to auto business. Today it makes only one item for the auto companies: frames. It has a home appliance division, a plumbing division, and a hardware plant.

In the first part of this year—while many auto suppliers were scrabbling for work—Murray increased its profit from $2.2-million the first nine months of its 1953 fiscal year to $3.6-million in the same period of 1954. Murray has so successfully diversified that it now has about decided to sell its huge 3-million-sq. ft. Detroit plant and become, for administrative purposes, a holding company. Loaded with working capital, Murray is looking for companies it can buy to continue its growth.

• **Profits Cut**—In contrast, look at Motor Products Corp. It turned a profit

15,000,000*

Remington Typewriters ago...

...way back in 1873, the world's *first* practical typewriter was built by Remington Rand. Improvements and innovations followed, and finally, in 1925, the first *electric* typewriter was produced—*another Remington Rand first.* Further development over the years has brought the typewriter to the peak of perfection so clearly illustrated in the new 1954 Remington Electric Typewriter. It's the finest typewriter available today... turns out *truly distinctive work* in *so little time,* with *so little effort!*

* Many millions more typewriters than any other manufacturer. Our 15,000,000th typewriter, the Remington Electric shown here, was produced in September of this year.

Incidentally, we've turned out an informative and entertaining illustrated booklet entitled "A Brief History of the Typewriter." If you'd like a copy, write for RE8677, Remington Rand, Room 2005, 315 Fourth Avenue, New York 10, New York.

Remington Rand

Makers of the Remington Standard, Electric, Noiseless, Quiet-riter and Office-riter Typewriters

STONE's design and merchandising services can help you tell your product story in *color* with *Multitone** Have this effective additional selling power all the way through distribution . . . from factory to store to home. Examine your present shipping container. Packaging revaluation can produce enough savings in labor, inventory and other expenses to pay the slight cost of blanketing your cartons with color and printing . . . a potent new merchandising medium.

Revaluate your present shipping container.
Write for STONE's free *Evaluation Check List.*

* *Exclusive registered process.*

STONE CONTAINER CORPORATION

General Offices: Dept. B-10 • 4200 W. 42nd Pl. • Chicago 32, Ill.

OTHER PLANTS and MILLS: Chicago, Ill., Philadelphia, Pa.; Franklin, Ohio; Coshocton, Ohio; Pittsburgh, Pa.; Mansfield, Ohio; Mobile, Ala.

SALES OFFICES: New York; Philadelphia; Pittsburgh; Allentown, Pa.; Lancaster, Pa.; Baltimore; Wilmington, Del.; Akron; Cleveland; Columbus; Toledo; Lima, Ohio; Mansfield, Ohio; Sebring, Ohio; Kenosha; Chicago; Joliet; Grand Rapids.

of $3.1-million in the fiscal year ended June 30, 1953. For the 1954 fiscal year it showed a loss of $1.1-million. Now General Tire seeks to buy it.

Or consider Electric Auto-Lite Co., one of the giants of the auto supply business. Its chief customers are Chrysler and the Little Three. For first-half 1953, Auto-Lite made $5.7-million. This year in the same period its profit was $776,000.

Auto-Lite is taking care of its immediate cash needs through a loan from Equitable Life Assurance Society that gives it $14-million of new money to use as working capital. But few in Detroit will be surprised if Auto-Lite's fate is a merger with Chrysler.

VI. Not Dead Yet

While the rise and fall of car sales and all the other risky factors will always be hanging over the heads of auto suppliers, men deeply rooted in the business are hard to discourage. For there is another side to the coin. The car assemblers will always have some heavy outside contracting, despite the self-assured comment of one purchasing executive (not in General Motors) that "There isn't anything this corporation can't make."

• **Don't Do It Yourself**—Basically, the reason is a matter of economics, although it is based on several different considerations. Auto suppliers feel that car assemblers will always farm out low-volume items, for it would not pay to build a plant and to tool up to produce them. There are large-volume items, too, that the car companies probably will never go into, because of the heavy capital investment required—these include such things as tires, glass, textiles. Then there is the necessity for having duplicate sources of supply on some items—transmissions are an example, as far as Ford is concerned.

Transmissions are also the example for what is perhaps the most profitable area where suppliers will always be in demand: specialty items. Borg-Warner, for instance, developed the Ford automatic transmission (along with Ford engineers) and has been manufacturing about 50% of Ford's requirements. B-W recently completed a $20-million plant at Decatur, Ill., for production of Ford automatic transmissions. It's a safe bet that B-W must have had some assurance of continued Ford business before embarking on the project.

B-W also makes overdrives for all companies using that transmission combination, and this business is increasing. Some companies will offer overdrive for the first time on their 1955 models. Spicer Mfg. Div. of Dana Corp. is another transmission specialist that sees no long-term decline in its business (BW—Oct.2'54,p104).

Comfort

The three-toed sloth relaxes happily in this "comfortable" position.

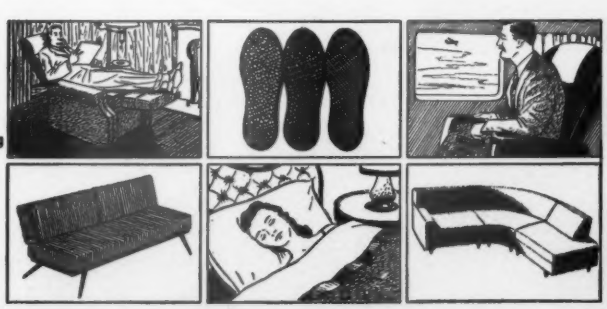
But man doesn't find comfort so naturally. He must *make* it with cushioning materials like Texfoam latex foam and Spongex cellular rubber.

As cushioning in furniture, Texfoam offers unequalled relaxation and comfort . . . comfort that remains unchanged year after year.

Texfoam cushioning in transportation seating makes travel smoother, more pleasant. Spongex, as soles and innersoles, cushions shock—puts feet at ease. Texfoam pillows offer cooler, more relaxing rest.

Cushioning is but one of the many functions of Spongex cellular materials. Others are insulation, sound and vibration damping, shock absorption, flotation and sealing. If you have a problem involving one of these, please write us.

Chair cushioning
Soles and innersoles
Transportation seating



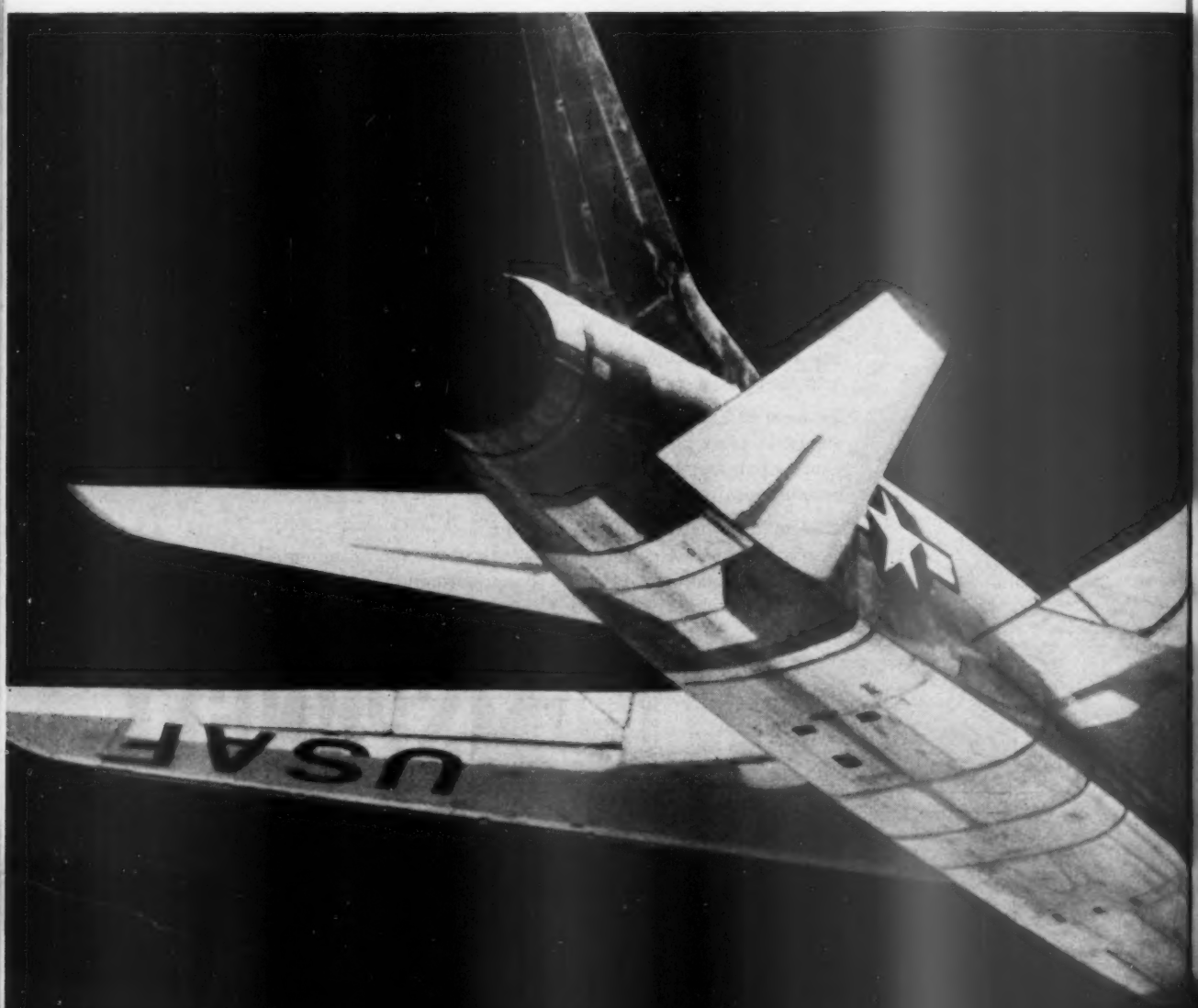
Sofa-bed cushioning
Bed pillow
Sofa cushioning

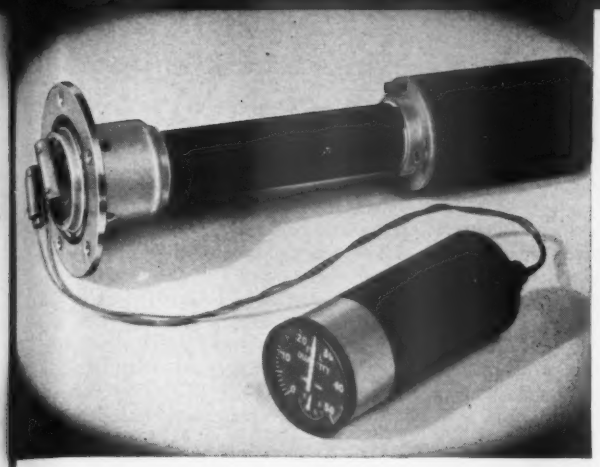
SPONGEX®
cellular materials

B.F. Goodrich
Sponge Products Division
17 Derby Place, Shelton, Connecticut

The First Transistor Fuel Gage makes possible

BETTER APPETITE CONTROL FOR FUEL-HUNGRY JETS





Smaller in size, lighter in weight. This is a picture of a production model of the new Honeywell Transistor Fuel Gage. Note that it's made up of only two elements—a combined indicator-amplifier located on the instrument panel and a tank element in the fuel cell.

Transistors up to 20 watt power are now in production at Honeywell's Transistor Division. The units are produced in air-locked rooms under dust-free, constant climate conditions. Many skilled technicians help make possible the high reliability and uniformity of Honeywell Transistors.

TODAY'S JET ENGINES burn as much as 2,500 gallons of fuel an hour. More accurate and dependable fuel measurement obviously means that the pilot can plan longer, more flexible missions.

This is the big reason why we have redesigned our fuel gage around the transistor and have produced a gage that can reliably measure 5,000 gallons of fuel *to the gallon* while in flight.

Transistors are rapidly fulfilling all the predictions that were made for them. In one electronic system after another, they are being applied to reduce size, weight, complexity, and maintenance service problems.

But it is only since Honeywell developed and put into production the first *hi-power* transistor that aviation has a transistor capable of handling the 2 to 20 watts required by instruments and control motors.

First transistor fuel gage

Honeywell's development of the new power transistor led to the design of the *first* transistor fuel gage. The new fuel gage has all the accuracy of the famous Honeywell electron-tube gage, but is lighter, smaller, and requires less than half the power. More important, the transistors have an exceptionally long life, and are extremely resistant to shock and vibration. Hence, unlike electron tubes, they needn't be accessible for easy change. They are sealed within the indicator itself—hermetically protected from dust and accidents.

The long-life characteristic also makes the new gage the most reliable available today. Designed to meet all military specifications, it operates from minus 65° to 160°F.

If you would like full details on the new Honeywell Transistor Fuel Gage, write us on your business letterhead at the address given below.

Controls for everything that flies

We believe our contribution to America's position in the air rests on two special abilities: The ability to *design* the increasingly complex control systems which today's aircraft require. And the ability to *produce* these systems in quantity—on a basis of interchangeability of components which saves money for airframe and engine manufacturers, the armed services, and American taxpayers.

In our 500,000 square feet of plant space, 5,000 engineers, researchers, technicians, and skilled craftsmen work at the job of producing fine Honeywell Airborne Controls and devising even better ones. We would like to put this pool of skill to work for you.

Besides the new transistor fuel gage, Honeywell produces a complete line of gyros for stabilization, fire control, aircraft control, and missile guidance . . . electronic autopilots for helicopters and fixed-wing craft . . . jet engine controls . . . power controls . . . synchronous vibrators . . . actuators . . . amplifiers . . . valves and switches.

MINNEAPOLIS

Honeywell

Aeronautical Division

2600 Ridgway Road, Minneapolis 13, Minnesota

H HONEYWELL

Plastic Pipe: A Mile a Day

Plastic pipe chalked up a new growth mark this week in its rapid progress to maturity, when a 12-mi. pipeline made from Kralastic was dedicated in an oilfield at Heidelberg, Miss.

The new line, longest continuous plastic pipeline laid in the U. S. to date, also contributed another figure for the books: It went into the ground at a speed of almost a mile a day, by the comparatively simple process shown in the pictures. The laying job was done by a three-man crew.

The line is scheduled to go into full operation before the end of the month, carrying unwanted salt water from 25 oil wells to a central disposal plant. It was built to help 14 independent oil operators in the field to get rid of a common headache: the problem of what to do with the salt water that is pumped to the surface with the oil.

• **Why Plastic?**—The oilmen turned to plastic because it cost less in the first place, and could be installed faster than the cement-asbestos pipe generally used in salt water lines.

Jack Petrofsky, head of Jack's Oil Field Service, which put the line in, ticked off some of the points that made even veteran oilmen rub their eyes in amazement.

One big advantage he pointed out is

1 LIGHTWEIGHT plastic pipe, to carry off unwanted salt water, is unloaded by one man in Heidelberg (Miss.) oilfield.

2 TRUCK DRIVER lays out 30-ft. lengths of pipe with built-in fittings along trenches dug the previous day.

3 JOINTS are made in a minute; a paintbrush smears on cement, and smooth end goes into fitting or other piece.

4 FEEDER LINES coming in from wells are cemented into special fitting, after main pipe is cut with a hack saw.

5 DOWN IT GOES—Same crew drops flexible pipe into trench, snakes it into long curves to allow for contraction and expansion. The flexibility of plastic pipe was extremely useful in getting around pipe already in the ground.

How Vapor-Wrapper® Prevents Rusting of Steel Products

Nox-Rust's Vapor-Wrapper is a chemically treated paper that instantly releases an invisible rust-preventive vapor. The vapor mixes with moist air, rendering it non-corrosive to iron and steel. Thus Vapor-Wrapper provides fast-acting, long-lasting protection in production, transit, and storage.

Products protected with Vapor-Wrapper are clean, ready to use. There's no mess, grease, or goo; no expensive degreasing or cleaning is needed. Vapor-Wrapper is as easy to use as wrapping paper, and costs little more.

Write for Bulletin with complete information. Address Dept. BW1023.

NOX-RUST CHEMICAL CORP.
333 North Michigan Ave., Chicago 1, Ill.
Nox-Rust Offices in Principal Cities

tomorrow's Transmission TODAY!

PLAN-GEAR PGT TRANSMISSION

PATENT PENDING

AS SIMPLE TO OPERATE AS AN ELECTRIC MOTOR

Anyone can easily operate the new **PGT compound planetary transmission** by merely moving a single hydraulic control lever. With two forward and one reverse speeds, instantaneous selection is possible because the cushion shift action of the **PGT** prevents shock loading. Shift is made from full speed forward to full speed reverse in only 1½ seconds.

CONTROLLED BY HYDRAULIC PRESSURE

The **Plan-Gear Transmission** has two planetary gear assemblies for low and reverse and a multiple disk clutch for direct drive. The planetaries are actuated when hydraulic pressure contracts a band around an anulus or drum to provide the desired movement. A built-in oil pump provides pressure for actuating controls, lubrication, and flow to the torque converter.

The simply designed, sturdily built **Plan-Gear Transmission** has been tested exhaustively and successfully in the field as well as in the laboratory, and has proved superior to other more complex transmissions. If you have need for a transmission with 150 pound-feet continuous input torque, we'd like to discuss the matter with you. Write today for further information.

PGT-150 PLAN-GEAR compound planetary transmission

is rated at 150 pound-feet continuous input torque; self-lubricated, constant duty, for use with torque converter. Standard ratios: high, 1:1; low, 3:1; reverse, 3.2:1; optional reverse, 2.23:1.

Suggested Uses:

- Front end loaders
- Lift trucks
- Earth movers
- Hoists and cranes
- Car pullers
- Slushers
- Machine tools
- Conveyors
- Power take-offs
- Truck mixers

Designed and built exclusively by

AMERICAN GEAR & MFG. CO.

New Avenue, Lemont, Illinois
Phone: Lemont 920

Subsidiary of BRAD FOOTE GEAR WORKS, INC., Cicero 50, Illinois

". . . one man can shoulder up to 10 of the 30-ft. sections . . ."

PLASTIC PIPE starts on p. 86

the flexibility of the plastic pipe. This simplifies the task of ditch-digging; the trenches don't have to be straight, and don't have to have flat bottoms. The huge mechanical ditch-digger can churn its way at a speed up to 10-ft. per. min. across fields and along roads, scooping out a 2-ft.-deep trench.

Besides this, the pipe is so light that one man can shoulder up to 10 of the 30-ft. sections—weighing a total of 75 lb.—at one time. And there was no breakage while the line was going in, though the men who did the job had no previous experience with plastic pipe.

• **Tough**—The plastic used for the pipe—Kralastic—is a tough, corrosion-resistant blend of plastic and rubber. It's produced by the Naugatuck Chemical Div. of U. S. Rubber Co., which is completing new facilities that will permit tripling of its Kralastic output (BW—Sep.4'54,p150).

Kralastic is a comparative newcomer in the plastic-pipe big time, which only a couple of years ago was almost the exclusive possession of pipe made from polyethylene. Kralastic is now used in about 15% of the plastic pipe made. Besides salt water, it carries chemicals and other corrosives.

For the Heidelberg operation, Southwestern Plastic Pipe Co., Mineral Wells, Tex., fabricated Kralastic into 30-ft. lengths of 2-in. to 6-in. pipe, for the main and feeder lines.

• **Efficient**—The new pipeline enables the 14 independent oil operators to handle the salt water disposal problem more efficiently than they were able to do it individually. The 14 joined together, formed the East Heidelberg Salt Water Disposal Co., constructed a common deep disposal well for pumping the water back into the ground, and built the pipeline to carry water to it.

The line was built so that it would run downgrade for more than nine-tenths of its length and would need pumps at only two points.

Before the actual pipe-laying process shown on page 86 could begin, two steps were necessary. First a man carrying special detecting equipment walked over the proposed route to probe for the many buried lines lacing the oilfield. Behind him came the mechanical ditch-digger that scooped out the 2-ft.-deep trench.

In the pipe-laying operation, two men laid out the pipe lengths beside the trench, later put it in the ground; the third made the joints.

Production time is lost waiting for wiping materials

...Another good reason for switching to **Scott Wipers!**

Instead of having to leave the job to get clean wiping material, workers keep a box of Scott Wipers next to them all day long. This simplified system of distribution and control saves valuable production hours.

Scott Wipers are sanitary, disposable. They end the laundering problem . . . greatly reduce the costly scratches in finished work caused by chips lodged in wiping materials.

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Please send me full information on Scott Industrial Wipers.

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The Price Squeeze in Machinery

● Faced with a buyers' market, heavy equipment makers are doing their best to hold the line on list prices.

● But buyers' pressure gets tougher, and it's forcing more "adjustments," discounts, deals, and trade-ins.

● And the charges are flying back and forth, with purchasers blasting "ridiculous" price levels and manufacturers coming back at them with sales and profits figures.

A purchasing agent for a Midwestern factory, collecting prices among his suppliers last week for some heavy machinery, decided to try a twist of the screws. He was pleasantly surprised to find a considerable amount of "water" squirting out from what had looked like a solid and immovable list price.

Not that anything came off from the time-honored, fiercely guarded list price as such. Ostensibly, it stayed right where it was; but it looked a little hollow at the top after a series of "adjustments"—which the purchaser figured amounted to price cutting in disguise.

• **Pressure and Protest**—This is just one example of some of the pressure being applied across the country to prices of machinery—including heavy equipment, conveyors, machine tools, and electric gear.

Some equipment buyers have been loud in protest against the continuing high price tags on machinery. Others say nothing—just won't buy. But as one buyer added: "If we are really hurting for equipment, we pay through the nose and get it."

The protests, for the most part, don't get much sympathy from the manufacturers. Most of them admit their prices are "sky-high" but say, "so is everything else," claim they can't lower prices under present conditions.

• **Leverage**—But purchasing agents are finding that they have some leverage now on prices, and are beginning to apply weight for "deals." In many cases, they get results.

Here is what some manufacturers are doing to keep old customers without actually "cutting" the list price. They are:

• Offering much more on trade-in.

• Promoting installment buying and leasing.

• Offering new models with increased production capacity at the same price as the old machine.

• Giving a healthy discount for immediate cash payment—even though it was always demanded in rush-order years.

• **Heat**—The price question is generating a lot of heat. One automotive executive gives this retort to the machinery makers: "Machinery prices are up at least 15% from five years ago, sometimes 25%, and when compared with 10 years ago they are just ridiculous."

He pointed to a $36,000 polishing machine as an example. "Six years ago," he maintained, "that same machine cost us only $22,000—it still does the same job."

Manufacturers, on the other hand, give a number of reasons why they can't lower prices. They mention rising labor and steel costs and a falling volume of business (well documented with sales and profits records).

• **Price War?**—An electrical equipment maker in Cincinnati sees this as the key, says the whole flare-up was bound to come because of the new buyers' market. His rather bitter comment: "The boys know it is a buyers' market, and they are trying to start a price war. They are putting the squeeze on us, playing one company against the other . . . we are trying to stay out of it . . . look at our books . . . profits were never slimmer."

This mention of a possible price war brought a snort from one northern Ohio manufacturer. "Don't you know," he said, "that we, as machine tool builders, have not lowered the price of our products once in the last 30 years?" He explained that his company shaded the price of tooling, increased the price of trade-ins—but "never" lowered the set price of the machine.

• **Squeezes Everywhere**—Some buyers blame their troubles on this attitude. They point out that the whole country is caught in customer squeezes for lower prices for nearly all products—candy, electric ranges, automobiles, anything. The pressure, they maintain, is really paying off in all fields except machine building.

These buyers charge that the attempt to get lower prices on machines met with little success in the past because—in the words of one Cleveland executive—"the comparatively few members of that industry (machinery) are so much indoctrinated with the firm feeling that they are entitled to at least a 15% return on their investment . . . they would rather shut up shop than reduce their profit margin."

• **Holding the Line**—Whether that's true or not, many equipment makers right now are trying anything to keep from cutting their list prices. Some redesign their machines with new gadgets, or even latch on to a completely new kind of machine. If this doesn't work, they may start doing subcontract work or custom work. As a last resort some builders lay off help and cut production.

• **"Out of Date"**—Discontented buyers label the followers of this pattern "diehards," and come up with another complaint. They say many machinery makers are up against it because they are old-fashioned in their production methods.

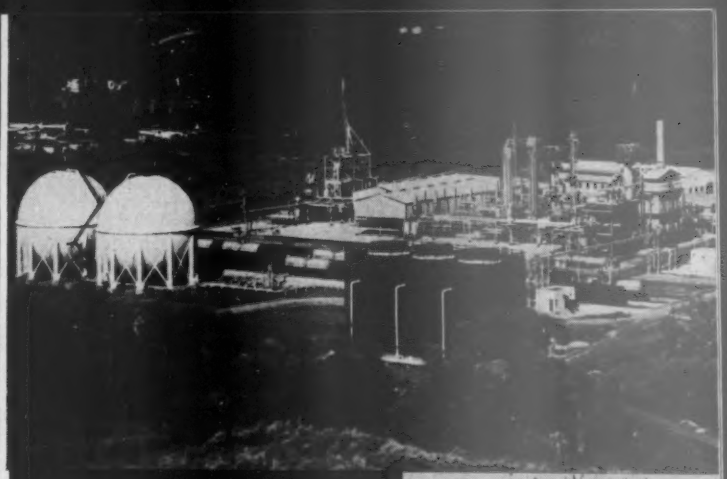
A New England manufacturer of enamel signs and kitchen equipment says he can understand why the machinery makers ask for a tall price. His explanation:

"They come to us with a sales pitch to streamline our plant with their machines, so we can cut costs—but when you take a look at their plant, they have equipment and production methods belonging to the middle ages. Why should we pay for it?"

Many of the smaller equipment makers have not been forced out of sloppy methods used during the helter-skelter, high-production war years, according to an upper New York State buyer. He blames poor sales forecasting. His cost cutting suggestion for manufacturers would be to mass-produce basic machines, then add special parts and attachments for buyers' specifications.

• **"Sour Grapes"**—Machine tool makers say this beef of the buyers is sour grapes talk. "It is just like the automobile business," according to one manufacturer of precision drilling equipment, "you give them a stripped machine with no extras and they don't want it." His company has to make machines with the tolerance of one-tenth the diameter of a human hair and he claims "you just can't whack out a precision machine like that on a mass-production basis . . . the customer will never be satisfied."

• **More for the Money**—Other manufacturers say the machine tool of 1927 has been improved so much it is scarcely recognizable. They admit that prices are way up but add, "look what you are getting." Improved alloy materials for surfaces, automatic lubricating systems, pinpoint measuring de-



At left workman applies lightweight FOAMGLAS easily and quickly. At lower right is shown the sphere during installation of FOAMGLAS. Above is Shell's Ventura plant. The two spheres are insulated with FOAMGLAS.

FOAMGLAS stay-dry insulation helps SHELL keep ammonia a constant 39°

Temporary storage of 3 million gallons of anhydrous ammonia in three huge refrigerated spheres is strictly routine now at Shell Chemical Corporation's new plants at Ventura and Kerman, California, thanks to the use of FOAMGLAS to insulate the million gallon spheres.

Two years ago Shell Chemical invested $10,000,000 in this new plant. Its product is pure ammonia which is handled as a liquid and kept in that state by storing it at a pressure of 50 psi and by refrigerating it to 39° F. For this purpose Shell erected two 65 ft. diameter spheres at Ventura and one at nearby Kerman.

Keeping ammonia constantly at 39° F. calls for good insulation of the spheres. One of the reasons FOAMGLAS was selected for the job is that it stays dry. No other insulation has waterproof, sealed glass cells to provide constant insulating efficiency and protection of the spheres from corrosion.

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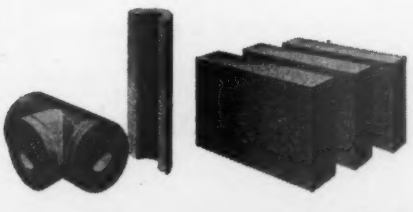

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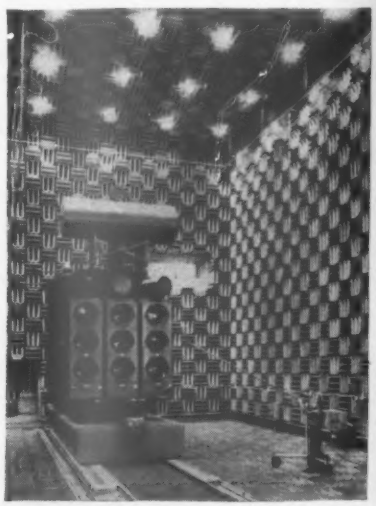
vices, preselection of speeds, chip breakers, and much heavier gear—they maintain—are just a few examples of the vastly improved product.

• **Replacement**—The buyers return to the attack on another flank. They say that somewhere down the price line is an untapped pool of orders for manufacturers to replace old plant equipment—if the tab were more realistic. The president of a Pennsylvania coal mining company said, "Unrealistic equipment prices have retarded our ability to expand mechanization and replace old equipment."

• **Imported Jitters**—Some purchasing agents are finding bargains in Switzerland and Germany for mining machines and other types of highly specialized heavy equipment. In some cases they can get as much as a 30% rake-off. Manufacturers here will tell you that they realize foreign equipment sellers are making inroads on the American market but they feel that a big rush to Europe is improbable.

"They just don't have the capacity to put out a lot of stuff over there on rush orders, and it is hard to get service and parts from them," a leading New England machine tool maker said. But he admitted that foreign sellers were making him jittery.



Can't Hear a Pin Drop

It's General Electric's "quiet room" in its new $1.5-million sound laboratory at Pittsfield, Mass.; a technician is sound-testing a huge power transformer in the echo-proof chamber. The idea is to find how to make quieter transformers. The patterns of thousands of sound-absorbing glass fiber wedges cover walls, ceiling, even the screened floor to kill any possible echo. Walls are 5-ft. thick, made of layers of concrete, glass fiber, copper sheathing, with dead air space between studs and fiber wedges.

60 cents buys how much of his time?

Let's assume your current piping maintenance labor rate, including burden, is $3.85. Less than 10 minutes is all you would get for 60 cents. Time to write a valve repair ticket and gather up tools—no more!

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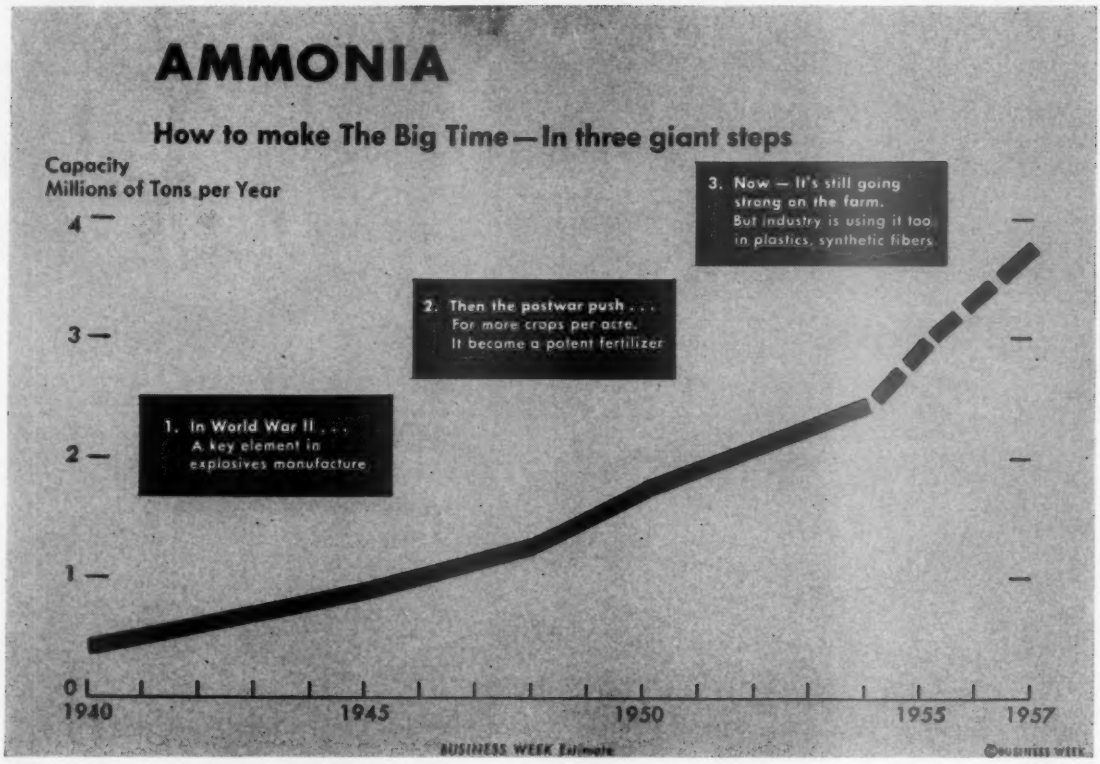

AMMONIA
How to make The Big Time—In three giant steps
Capacity
Millions of Tons per Year
4
3
2
1
0
1. In World War II . . . A key element in explosives manufacture
2. Then the postwar push . . . For more crops per acre. It became a potent fertilizer
3. Now — It's still going strong on the farm. But industry is using it too in plastics, synthetic fibers
1940
1945
1950
1955
1957
BUSINESS WEEK Estimate

The Farm Makes New Plants Grow

A market analyst with one of the big chemical companies complains that he spends so much time keeping track of the new companies that are getting into the ammonia business that he hasn't time for his other work.

You see his problem when you look at the fast-climbing line on the chart above, which represents ammonia's expanding productive capacity. And you get a measure of the huge investment that has been made in this industry when you figure that each 1-million-ton increase represents an investment of close to a third of a billion dollars.

• **Federal Nudge**—Only a couple of years ago, the Office of Defense Mobilization was concerned about ammonia. ODM feared that there wouldn't be enough of it by 1955, because demand was increasing so fast. To make sure that existing manufacturers expanded their facilities, and that enough new companies got into the business of producing ammonia, the government set up a fast amortization program, figuring that it could increase capacity by some 500,000 tons a year.

In no time, the government found itself denying applications for the special tax provisions—too many subscribers. But that didn't stop more and more companies from getting in.

• **Newcomers**—Until just recently, the big names in ammonia production read like a directory of blue chip chemicals: Allied Chemicals & Dye, American Cyanamid, du Pont, Olin-Mathieson. But in recent months, more and more newcomers are moving in from the oil industry: Standard Oil of Indiana, Sinclair, Atlantic Refining.

And just two weeks ago Sun Oil Co. said that it was getting in too (BW—Oct.16'54,p137). Sun said that it would have a plant in operation at Marcus Hook, Pa., next year.

When that plant starts producing, it will have an annual output of about 100,000 tons. That's twice as much ammonia as all the plants in the U. S. were producing together 14 years ago.

Yet, the new plant won't even stand out as the industry's new giant. There are now at least eight plants in operation that are bigger.

I. Where It Goes

Who needs all that ammonia? The industry will produce about 2.5-million tons this year. Most of it will go to the farmer. He will take about three pounds in every four—or about 1.8-million tons—for fertilizer.

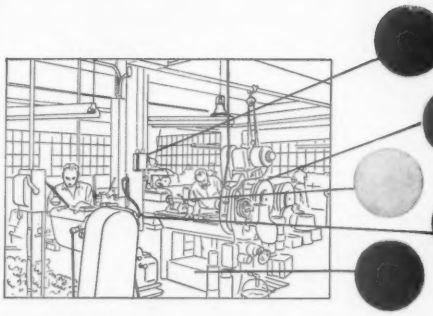
Next year, as a result, he will find that he has increased his yield per acre. If his land is in need of nitrogen—ammonia's chief element—he stands a good chance of doubling his yield.

Industry will take most of what's left of that 2.5-million ton output—about 500,000 tons. Manufacturers of synthetic fibers will use it in the production of such fibers as nylon and Orlon. So will plastics manufacturers—in the production of synthetic resins.

The new Sun Oil plant will aim its output at this industrial market. It expects to sell about 70% of its ammonia to chemical companies on the East Coast, the rest to agriculture.

Just about the same ratio holds for the Atlantic Refining Co., which opened a 100-ton-a-day ammonia plant near Philadelphia earlier this year. Atlantic expects about 60% of its production to find its way into industrial applications.

These two new plants are the first



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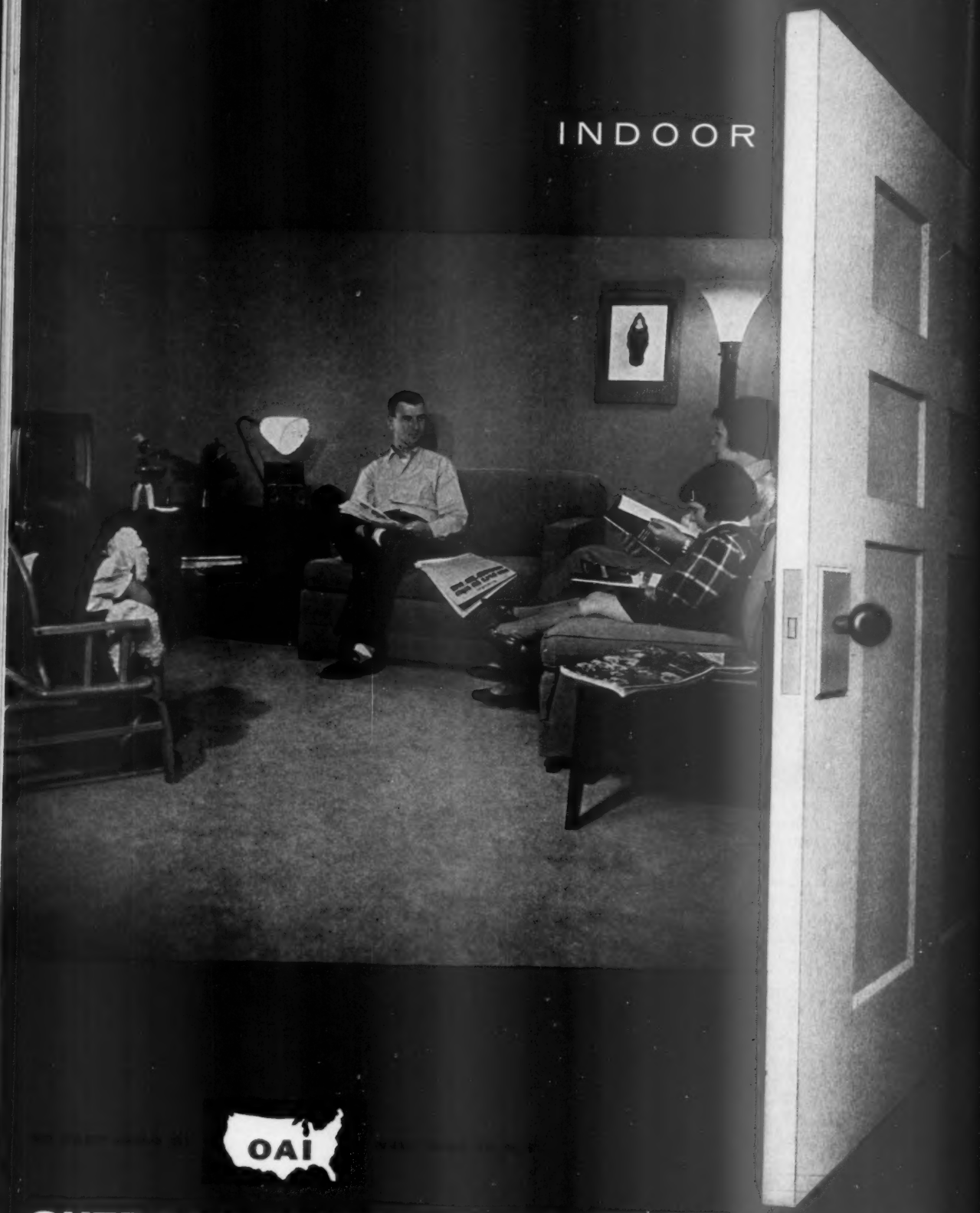

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to go up on the East Coast. They should hold a strong competitive position, at least until other companies decide to build there too, because their ammonia won't carry the freight charges that have to be tacked onto ammonia coming from, say, Virginia or the Middle West.

• **Second Strong**—But there is a second reason why companies like Atlantic Refining and Sun Oil want to operate ammonia plants. Ammonia is a logical step into the whole vast field of petrochemicals, which currently supply about one-quarter of the nation's chemical needs. It is probably the fastest growing segment of the chemical industry.

And there might be still another reason for oil companies' getting into petrochemicals. In ten years or so, two new developments may be far enough along to give the oil industry pause. One, of course, is atomic energy. The other is the gas turbine automobile, which will not use the high-grade fuels of today's cars. The company with a petrochemical business would have less trouble taking up any slack in oil.

II. How It's Made

To make ammonia, you need just two raw materials—nitrogen and hydrogen. You can pull in nitrogen from the air. And any catalytic reforming plant will pour out hydrogen by the tankful. Unless it is set up to use that hydrogen as a raw material—such as in ammonia production—the refinery is likely to burn it as fuel.

That's another reason why ammonia production makes so much sense to the petroleum company. Once it has its plant, it's just a matter of purifying the hydrogen and nitrogen, bringing them together under extreme pressure, then shipping the ammonia off in high pressure cylinders.

Of course, the bulk of the ammonia produced in the U. S. still comes from natural gas. It was that source that gave industry its vast supply of ammonia through the expanding years of World War II, and in the postwar period.

Before natural gas, the only supply source was the coke oven. In the production of coke, ammonia could be tapped off (about 6 lb. per ton of coal). But such a source could never be expected to turn out enough ammonia to keep up with today's demands.

• **Variations**—As a result, all but a tiny fraction of the ammonia that is produced in the U. S. today comes either from natural gas or from oil. Yet, the basic process is fundamentally the same, whether the hydrogen comes from gas, oil, or coal. Most companies produce ammonia using one variation or another of a process that was developed before World War I.

Those modifications boil down to

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What's needed to make a new or redesigned product a healthy sales and profit builder? In the research and development stage, certain elements are vital . . . elements which Designers for Industry has made the basis of its service, to assist clients in creating *better, less costly, more salable* products.

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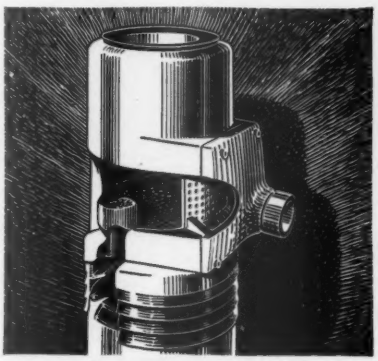
Cost Reduction. Will the redesigned product do a better job at the same manufacturing and selling cost . . . or perform its present function at lower cost? This is a key consideration in every DFI development project. See typical examples below.



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differences in sources of hydrogen and nitrogen, different methods of purifying the two gases, variations in temperature and pressure, and variations in the method of final recovery of the gas.

But it has been these variations on the old idea that have streamlined the process, made ammonia relatively easy to produce.

III. Growth of the Industry

Ammonia production in the U.S. really didn't get started until the early days of World War II, when the sudden need for nitrogen—for explosives manufacture—shoved it out of the small industry stage and started it on the climb shown on page 94.

The government pulled companies into the business during the war years, tripled the U.S. production between 1942 and 1945. But when the war ended, the boom didn't stop.

• **New Use**—After the war, ammonia caught on as a fertilizer. Its growth in the first five postwar years was just about as fast as it had been during the war.

The agriculture industry took up the slack that showed up when we stopped making ammunition in great quantity. Today, agriculture alone uses about four times as much ammonia per year as the ammunition producers used during the war.

There is little doubt that the almost overnight growth of this huge agricultural market has been the cause for so many companies jumping into the ammonia business. For the past seven or eight years, agriculture has been gobbling up more ammonia than U.S. industry could produce.

Right after the war, farmers started using ammonia-based fertilizers in larger and larger quantities. The farm demand increased by something like 70,000 tons per year until 1949. Then it climbed still faster—at an annual rate of something like 200,000 tons.

Producers were scarcely able to keep up, though more and more of them were coming into the market. Today, with 1.5-million tons going to agriculture, the supply just about equals agricultural demand.

• **Brakes**—But, at last, there is a chance of oversupply. Some observers say that if farm demand for ammonia keeps climbing at its current rate—and no faster—we will have a 10% oversupply in another three years.

But you don't find such pessimism among the companies that are building the new plants. They point out that (1) if there is an oversupply in three years, it will work itself out in a year or two, and (2) the demand from industry—for such things as synthetic fibers and plastics—is growing just as fast as the demand on the farm.

No scrambling for seats at this party

Ever been embarrassed seating your guests for television? Did some of them have to take the side rows and strain to see the screen, like the last arrivals at a drive-in movie?

You'd have no such problem if your receiver had *"Panoramic Vision"*—an exclusive Stromberg-Carlson feature.

We developed this exclusive because we not only manufacture TV—we also look at it, in our own homes. And even though a Stromberg-Carlson—pardoning our pride—is as fine as anything on the market, it would be no fun at all if some of the viewers received only a distorted, side-of-the-room look at the screen.

Hence *"Panoramic Vision."* This ingenious design, using a cylindrical television tube fitted snug against a curved safety glass, eliminates the usual "shadow box" effect and does away with blind spots. Result—at least twice as many people can see a perfect picture, in complete comfort.

Such engineering is the combination of knowing what a product needs to be superior, and knowing also how to provide for it. We offer the same imaginative brains for *any* problem of communication—in business, industry and national defense. Can we serve *you?*

There is nothing finer than a

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Telephones and Central Office XY Dial Equipment

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Ask any number of Yoder Slitter Owners—

how they like it, and you may get as many different answers, because the benefits are so many.

One manufacturer said: "Our strip inventories have been reduced by 60% and greatly simplified. Our requirements in slit strands can now be quickly met from a relatively small stock of mill-width coils." Another manufacturer remarked: "We no longer have to worry about ordering strip long in advance, complicating our production planning." A third manufacturer made this comment: "We can now buy our strip wherever we can get the best quality, price and delivery. That saves a lot of time, money and worry."

Any one of these and other benefits may in itself be sufficient to justify the investment; yet, quite aside from this, the *direct savings in slitting cost always repays the investment in a short time,* often in less than a year.

Ask for the Yoder Slitter Book. It contains cost studies, time studies, information on scrap disposal, coil handling, small versus large slitters, and many other subjects of interest to users of coiled strip and sheets.

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5530 Walworth Ave., Cleveland 2, Ohio

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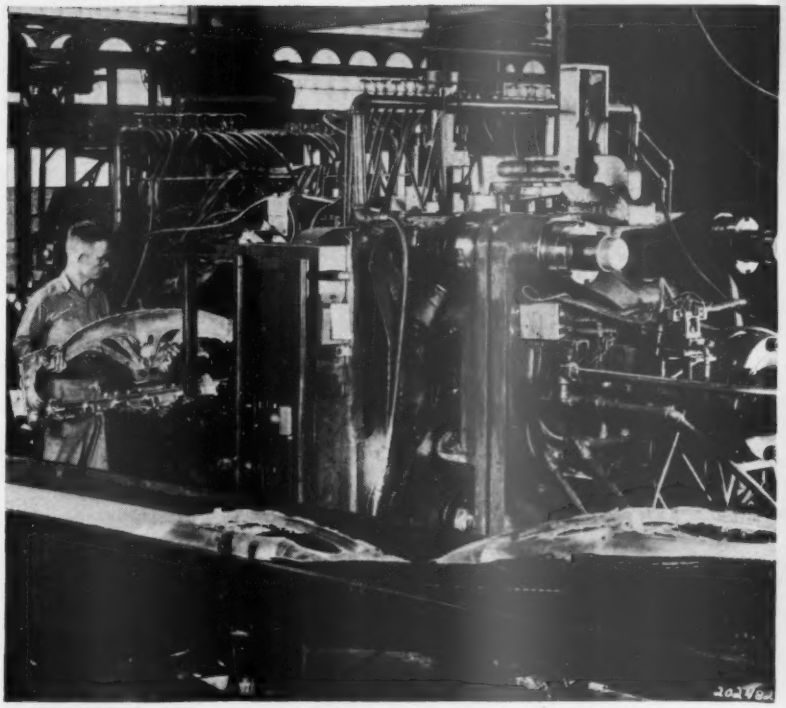

DECORATION is no longer the whole show, as die casting industry shifts to bigger products—like this auto grille—and to more utilitarian articles.

Die Castings Go to Work

The die casting industry is in a bullish mood. Largely, that's because design changes for 1955 automobiles will apparently increase the number of die castings used in each auto and truck, although the "job shops" can't talk about that specifically until after the new models have been announced officially. The auto industry is far and away the largest user of die castings.

This move by the auto industry is important for another reason. It reflects two major recent shifts in the use of die castings, hitherto largely confined to making small, ornamental, nonferrous parts:

• Engineers who for years thought of die castings primarily for ornamental work are now considering them for more functional applications. This shift in markets reflects in turn the development of higher strength alloys, higher casting pressure, improved die steels.

• Die castings are still primarily small items, but the size limitations are being pushed back. The grille above is the biggest zinc die casting now produced. Doehler-Jarvis Div. of National Lead Co., which makes it, has also developed a machine for producing large aluminum parts, perhaps even engine blocks (BW—Jul.17'54,p95). The die casting industry, whose prewar misapplications brought it a poor reputation, is now becoming a bellwether of industrial production, at least in some eyes. Dozens of key industries use its products. They rank with stampings, sand castings, forgings, and screw machine products in extent of use.

I. How It Grew

Die casting as a metal-working technique has achieved prominence only in the last decade or two, but it has been around much longer. A machine for die casting type was patented in 1849. The earliest commercial applications, about 1892, were for phonograph and cash register parts. Mass production of die castings began with bearings for automobile connecting rods in the early years of this century.

In the early days, alloys based on lead and tin were the most widely used. But these metals were costly and their relatively low melting points imposed restrictions. Zinc alloys took over the lead shortly before World War I, and, on a poundage basis, have held it ever since. Aluminum got into the act about 1914. On a dollar basis, it took the lead during World War II when zinc was scarce; this year aluminum is again running a neck-and-neck race with zinc.

The industry is now moving along at a $400-million-a-year pace. The

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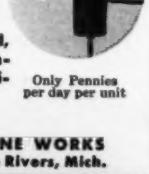

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ARMSTRONG STEAM HUMIDIFIERS

so-called "captive plants," primarily in the auto industry, make up one large segment. American Die Casting Institute estimates that last year captive plants accounted for 168-million lb. out of 512-million lb. of zinc die castings produced and 51-million lb. out of 236-million lb. of aluminum.

The rest of the die castings were produced by "job shops," companies that sell die castings to others besides a parent company. The Institute's 95 members are primarily the large producers. There are perhaps another 100 smaller shops. Among the large job shops are Doehler-Jarvis Div. of National Lead Co., Precision Castings Co., Inc., Aluminum Co. of America, Stewart Die Casting Div of Stewart-Warner Corp., Die Casting Div. of Electric Auto-Lite Co.

II. The Process

Heart of all die-casting work is the die. In its simplest form it consists of two matching halves of polished steel with a cavity between them cut to the exact shape of the part to be produced. There may be one cavity or, if the parts are very small, there may be several.

The industry in a new promotional film claims die casting is "the shortest distance between raw material and finished part." This is the chief selling point of the technique. The parts ejected from the machines require very little further finishing. There's less waste and, on complicated parts, costly assembly operations are eliminated.

Machines vary in speed and size, but they fall into two major types:

• In hot chamber machines, special automatic equipment feeds molten metal into the mold cavity and applies considerable pressure to the metal as it solidifies. The pressure prevents formation of blowholes and other defects. This is the type of machine generally used for zinc.

• In cold chamber machines, liquid metal is poured manually into the mold one shot at a time. This is the type used for high melting point metals such as aluminum or magnesium. If left in a pot to feed automatically, this molten metal would pick up iron impurities, causing defects in the final product.

In both methods, as soon as the molten metal solidifies in the cavity—and this happens almost instantaneously—the two halves of the die are unlocked and the casting is ejected. To run this cycle rapidly and economically, most shops use highly automatic equipment. All major parts are power-actuated.

At present, only nonferrous alloys are suitable for die casting. In order of poundage the list runs zinc, aluminum, copper, magnesium, lead, and tin. The variety of alloys is more limited than it is for sand casting and other competitive forms of metal working, but this may not always be so. Researchers are coming up with improved high temperature die materials. Ultimately it may be possible to use the technique for ferrous metals.

In the last five years, aluminum has hogged the die casting spotlight. Growth has been spectacular, from 88-million lb. to 236-million lb. Zinc poundage is much greater now than prewar, but since the war its growth has been stunted for a number of reasons that had nothing to do with the quality of the product.

Shortages of zinc, shortages of nickel used in plating, and some pretty wild price fluctuations have scared away some users. This year the business has been steadier and indications for next year are that some people who cut back on zinc in 1951 and 1952 are going back bigger than ever.

The rapid growth of aluminum in the die casting industry raises the question of competition with zinc. Both the American Zinc Assn. and the American Die Casting Institute claim there isn't any. Zinc is used for decorative effects and high finish. Aluminum stands on its properties—lightness, corrosion resistance, and heat resistance. That's why aluminum die cast parts are now used as waffle iron grids, torque converter parts, aircraft components. Zinc does not fit their bill.

III. Automobiles

For 50 years the biggest market for die castings has been automobiles. This has been zinc's territory; zinc die castings are cheaper than practically anything else. Zinc lends itself very well to the most highly automatic machines. The more automatic, the greater the savings on costs.

The auto industry also likes zinc because the as-cast surface is smooth. It's ready for plating after just a little buffing. This gives zinc an advantage over most other metals for decorative objects such as raised name letters, handles, radiator grilles.

In recent years auto designers and engineers have begun to appreciate zinc's physical properties. The new applications that zinc die castings are moving into are functional—as parts in carburetors, fuel pumps, wiper components, bearing seal retainers.

As purely functional parts, zinc die castings run into competition from stampings, screw machine parts, sand castings rather than other die cast metals. Zinc has a high impact strength, it can be cast in thin sections and complex shapes, corrosion is rare. Tolerances are good with little or no machine work.

Three truck tire miles for the price of one!

● ***Surprising that so many truckmen have a "blind spot" when it comes to this obvious way to save important money.***

Do you check your cost-per-mile on recaps? Truckmen who do are often genuinely amazed at the results.

For the figures show, on the average, that a "recap dollar" will take you three times farther than a "new tire dollar" . . . *three miles for the price of one!*

Obviously, recaps can save you a lot of money. Obvious—yet each year truck operators spend a fortune, literally, for tires that deliver little or no recap mileage before they end up on the junk heap.

How to get more "three-for-one" miles

Look for recap mileage when you're buying tires, not later when the tread begins to wear smooth.

Insist on a cord body strong enough to flex and recover tens of millions of times without losing its resilience—a body that resists severe impacts, bruises, moisture and extreme heat buildup.

These are the properties that keep tires fit for recaps. They can save you far more money than discounts or "price breaks" possibly could. That's why Kelly-Springfield has always emphasized that it pays to *buy the toughest tires you can find, not the cheapest!*

How does Nylon Cord fill this bill?

Nylon is the toughest material ever to find general acceptance for use in tires. Ounce for ounce, it's even stronger than steel. Nylon *can* give you far more recap miles than you've ever gotten before.

But—and this is an important "but"—don't expect miraculous results automatically, simply because a tire is built with Nylon. "*Who* builds the tire, and *how?*" is fully as important as what material is used.

If Nylon is to do its best possible job, it must be pre-stretched, heat-stabilized, subjected to many costly, exacting processes and controls. And, of course, the tire it goes into must be extra strong *throughout*, quality-built in *every* detail.

Nylon costs more—is it worth it?

Consider, for example, a tire that *is* quality-built in every detail, built by an industry leader who uses the finest known process for treating Nylon—the Kelly Nylon Super Armor Trac.

This tire costs about 15% more. So to pay out it must deliver more than 15% extra mileage. Does it?

A file full of actual cost-per-mile records proves that the Kelly Super Armor Trac will repay that 15% premium many times over. Trucker after trucker reports record highs in recap mileage (mileage you buy at ⅓ of new tire cost). What's more there's an invaluable dividend in blowout safety for driver, truck and load.

It's plain fact: Kelly truck tires make the absolute most of Nylon's tremendous potential for money-saving recaps. Write us today and we'll give you all the details. Address: The Kelly-Springfield Tire Company, Cumberland, Maryland.

There's a tough Kelly for every trucking job!

KELLY Springfield TIRES

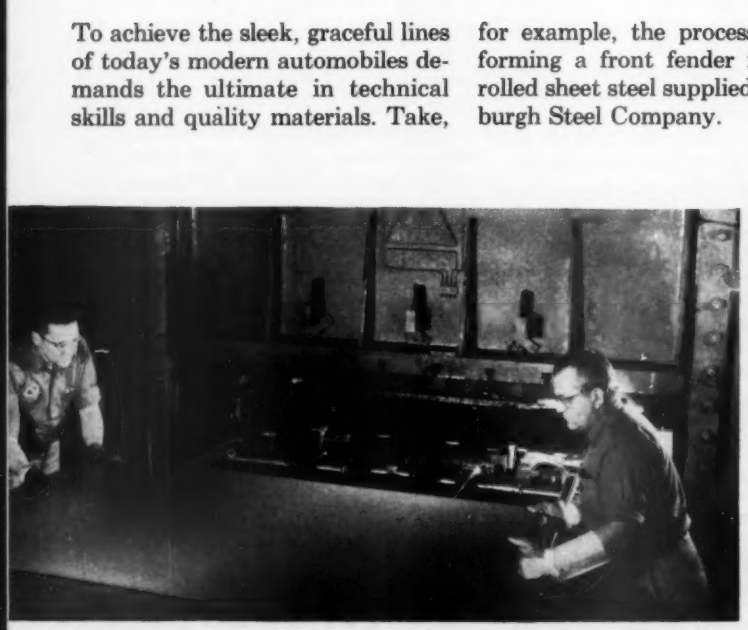
THE KELLY-SPRINGFIELD TIRE COMPANY, CUMBERLAND, MARYLAND

Down This Production Line come some of America's most beautiful fenders. It is one of many places in industry . . .

Where Steel Becomes Curvaceous

To achieve the sleek, graceful lines of today's modern automobiles demands the ultimate in technical skills and quality materials. Take, for example, the process of cold-forming a front fender from cold rolled sheet steel supplied by Pittsburgh Steel Company.

This precise process is possible only when the steel has the proper internal and external qualities that let it flow evenly and true to form



A Fender starts with a flat sheet of cold rolled steel. Each sheet is blanked into a fender-sized panel.

Formed on this 750-ton drawing press, the cold steel panel flows under tremendous pressure to the contour of a fender.

Trimmed to exact size, the fender is scrutinized for any surface defects that may have resulted from the severe drawing.

Welded to the front of the fender is a segment that will hold the headlight. The surface of the weld is then ground off to perfect fender contour.

Quality of the steel and of the fender made from it gives beauty and style where quality counts most.

under tremendous pressure of deep drawing dies. The sheets must be uniform—sheet after sheet.

• **How Is This Possible?**—Good internal quality of the steel, proper chemical analysis, elimination of inclusions in the steel, control of grain structure—prevent stretcher strains from appearing in the surface of the fender. It prevents lamination, seams, rough grainy surface and even tears and breaks in the steel.

The surface of the steel must be free of external defects and its thickness controlled to within a few thousandths of an inch to work properly to the exacting limits of the dies. This assures even flow of the steel to all parts of the dies—prevents wrinkles — prolongs the life of the die.

The steel must have good weldability. As the process continues, the headlight retainer is welded on. Then the dust shield, mounting and reinforcing brackets are installed and it goes to the finishing line.

Metal finishing is the final test of perfection. Here the surface is filed, disc ground and polished. Yet it must retain a finish that is free from swirls, high or low spots, or skin peel.

• **Good Steel Pays**—When you consider these facts, it is easy to understand why automakers who insist on top quality steel buy from Pittsburgh Steel Company.

They know that a four-year, $65-million modernization program has improved facilities in every department and provided steel of sound inherent qualities to be rolled on brand new hot and cold rolled sheet mills. These mills are equipped with the latest technological advances to give the highest scientific accuracy in the control of sheet thickness and shape.

The extra attention to quality at Pittsburgh Steel gives you cold rolled sheet that makes possible higher yield and fewer rejections on your production lines. It makes possible longer die life, less finishing and at the same time improves the quality of your product.

If you want to know more about this new opportunity for savings that result from top quality sheet steel at competitive prices, ask to have a Pittsburgh Steel salesman call. You will enjoy the prompt personal service he will offer.

A copy of the color brochure "The New Pittsburgh Steel Company" is yours for the asking.

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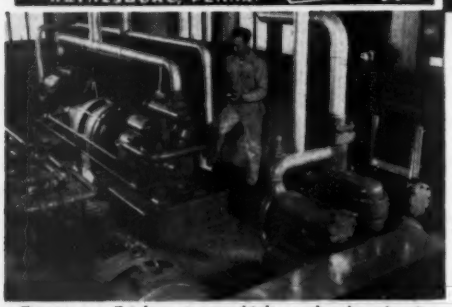

Two-stage Frick system which cools the air at Ames Aeronautical Laboratory

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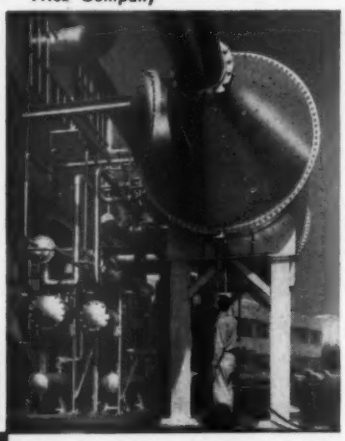

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Titanium Boost

New production methods are overcoming the metal's limitations. But price still confines it to the military.

With refined titanium selling for between $8 and $20 per lb.—$20 for aircraft-quality material—there's little likelihood that titanium will go civilian in the near future. But this week two announcements indicate that some of the metallurgical and production problems are being licked:

• Titanium Metals Corp. of America has been producing high quality titanium sponge at the rate of 10 tons a day at its Henderson (Nev.) plant. Total U. S. production of sponge last year was only 2,350 tons. TMCA is owned jointly by National Lead Co. and Allegheny Ludlum Steel Corp.

• Battelle Memorial Institute has developed a new titanium alloy capable of being heat-treated to very high strengths. Previously, titanium alloys became brittle when, after initial heating, they were quenched and then reheated or "aged." Heat treatments used on the new alloy are said to eliminate brittleness and produce a metal with a strength of over 200,000 psi.

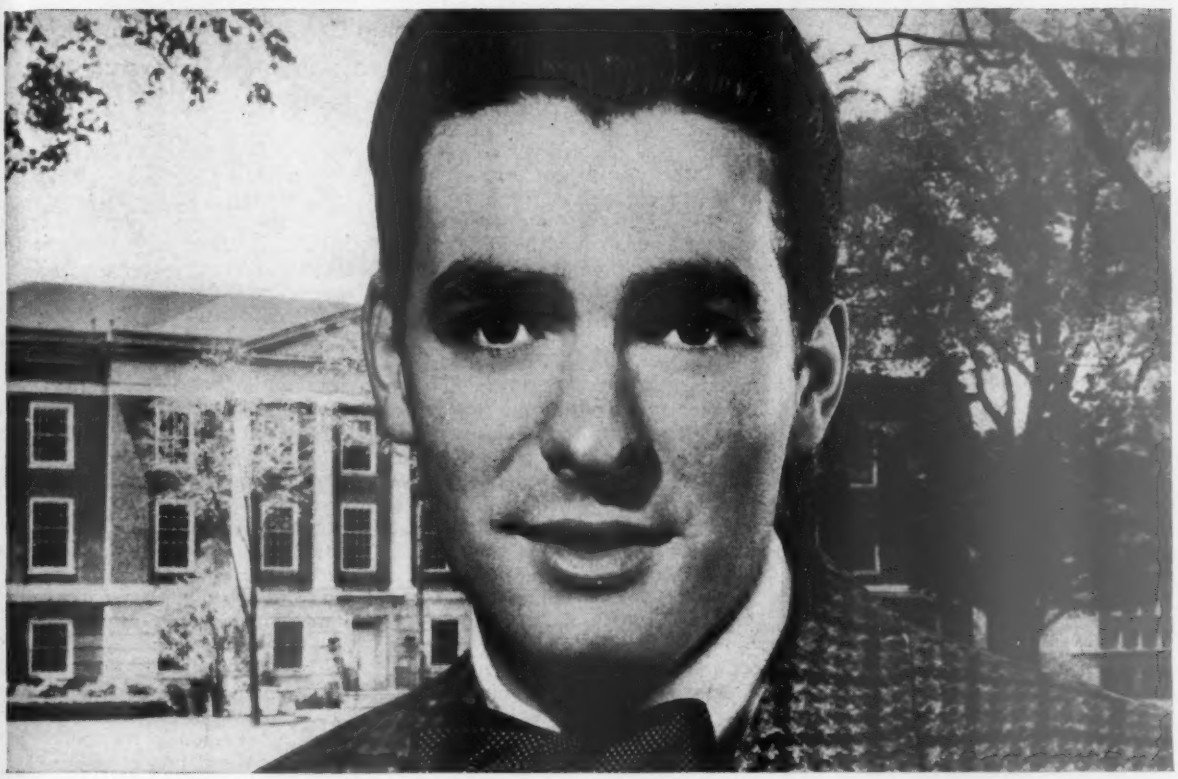
• **Long Road**—Considering that titanium wasn't commercially produced until 1948, the metal has come a long way. With the TMCA plant now in full production, this year's output may pass 5,000 tons. But titanium still has a long way to go. Defense Dept. plans call for an annual production rate of 30,000 tons in three years, and anticipates needs of 100,000 tons a year by 1960.

Government attention was attracted to titanium after World War II because the metal had the unique combination of high melting point, corrosion resistance, light weight, and high strength. The military takes practically all that's available for compressor discs and blades, aircraft skins, airframe construction, fire walls, and various other structural parts.

• **High Hopes**—The high cost of titanium, which stems from complicated methods required in recovering the metal from the ore, has tempered the enthusiasm of many who originally thought it would be a metallurgical panacea. There is, of course, hope that titanium alloys will be devised to overcome some of the problems. This week's announcements certainly back up these hopes.

Research is still the life-blood of titanium. Dozens of research outfits are now under government contract to find new ways of refining and fabricating titanium and its alloys.

A Young Man From Syracuse Tells Why . . .



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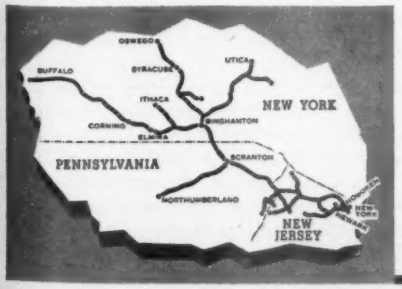
Plant Site of the Month

40 acres, just outside Syracuse, railroad owned, this site is suitable for heavy industry.



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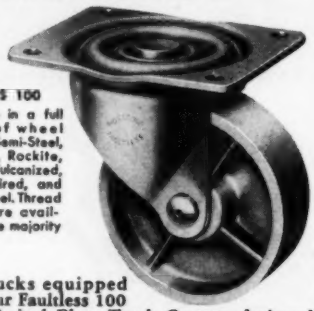
Peak Production on Castered Trucks at Liggett & Myers, Durham, N. C.

The production of millions of cigarettes every eight hours at the Durham plant of Liggett & Myers Tobacco Company depends to a large extent on material movement of the highest efficiency. One very important operation in the manufacture of cigarettes at Liggett & Myers is the transfer of tobacco between a conveyor at the central tobacco truck loading depot and the hundreds of cigarette making machines in the manufacturing area.



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Available in a full range of wheel sizes in Semi-Steel, Ruberex, Rockite, Plaskite, Vulcanized, Rubber Tired, and Drawn Steel. Thread guards are available in the majority of sizes.

Box trucks equipped with four Faultless 100 Series Swivel Plate Truck Casters, designed especially for the tobacco industry, are used by Liggett & Myers. These highly maneuverable casters have 4-in. diameter, plain bearing, semi-steel wheels. With the trucks rolling easily over hardwood floors at the Durham factory, these Faultless casters assure a constant supply of bulk materials to each of the cigarette making machines. Casters for light, medium, heavy and special duties are included in the extensive Faultless line. Faultless wheels are available for every type floor and load, as well as for special conditions encountered.

Each month the solution to a real materials handling problem is fully presented in a free, handy size folder. To get the complete story on the Liggett & Myers caster application mentioned above, write for your copy.

SERIES 500
Exceptionally strong and durable, deeply corrugated to withstand strain. Choice of several wheels, including Drawn Steel or Plaskite, thread guard optional.

FAULTLESS CASTER CORPORATION, EVANSVILLE 7, IND.
Making Casters for more than 64 Years

New Bridge from Lab to Plant

Michigan's Engineering College sets up program to get useful research results across to industry faster, help its scientists know plant problems better.

Each year the nation's colleges and universities add to our store of fundamental knowledge through basic research in engineering and science. This is ivory tower or fundamental research, and it's done without any specific practical application in mind. But much of what the scientists uncover has potential use for industry.

There's one big difficulty, though, in putting this knowledge to use: That is the problem of getting the story across from the universities to industry. Even when companies employ full-time people to study research reports from the universities, the difficulty remains—because there is often a lag of a year or more between the time a project is completed and the publication in technical journals where all can see.

• **Closing the Gap**—That part of the problem is being tackled from the other end. Several universities, particularly those with large engineering schools, have established industrial programs to improve communications between the ivory tower labs and the country's production lines. Industry has usually been the prime mover in these efforts, footed most of the bills. The latest to take the step is University of Michigan's College of Engineering at Ann Arbor.

This fall Michigan is setting up a subscription program with a double aim: (1) distributing its research results faster and more widely, and (2) acquainting its faculty and students with industrial problems. Interested companies pay a fee of $5,000 a year, which the university says is about one-third the cost of a good technical man in an industrial research laboratory.

• **Setup**—The new communication line will transmit information in fields in which Michigan engineers are well known. These include high-temperature metallurgy, combustion, computer engineering and application, fluid mechanics, electronic instrumentation, acoustical measurements, petroleum, hydrocarbons.

The program has three main features:

• Preprints of research reports will be sent out long before they appear in technical journals. Michigan turns out 13,000 to 20,000 pages of original research material each year—excluding classified applied research on special projects.

• Program directors plan to issue four engineering manuals a year. These are comprehensive surveys of all work in a particular field. A manual on welding techniques and another on nuclear engineering are being prepared for distribution this fall.

• Specific topics will be taken up at technical meetings, which will bring together representatives of industry and the university to thresh out timely problems face to face. There will also be annual sessions for presentation of recent scientific advances, preliminary discussion of investigations in progress.

Michigan has organized a permanent staff for this Industrial Program, headed by Harold A. Ohlgren, professor of chemical engineering and assistant director of the Engineering Research Institute. A special faculty advisory committee and a faculty review board will guide the course of the program.

• **Tryout**—The idea has been tested out in round-table discussions in advance of the formal announcement. One of these was conducted with a group of 60 technicians from Chrysler Corp.; the other was an Industrial Education Series on nuclear power, run in cooperation with the Dow-Edison project (BW—Apr.24 '54,p28).

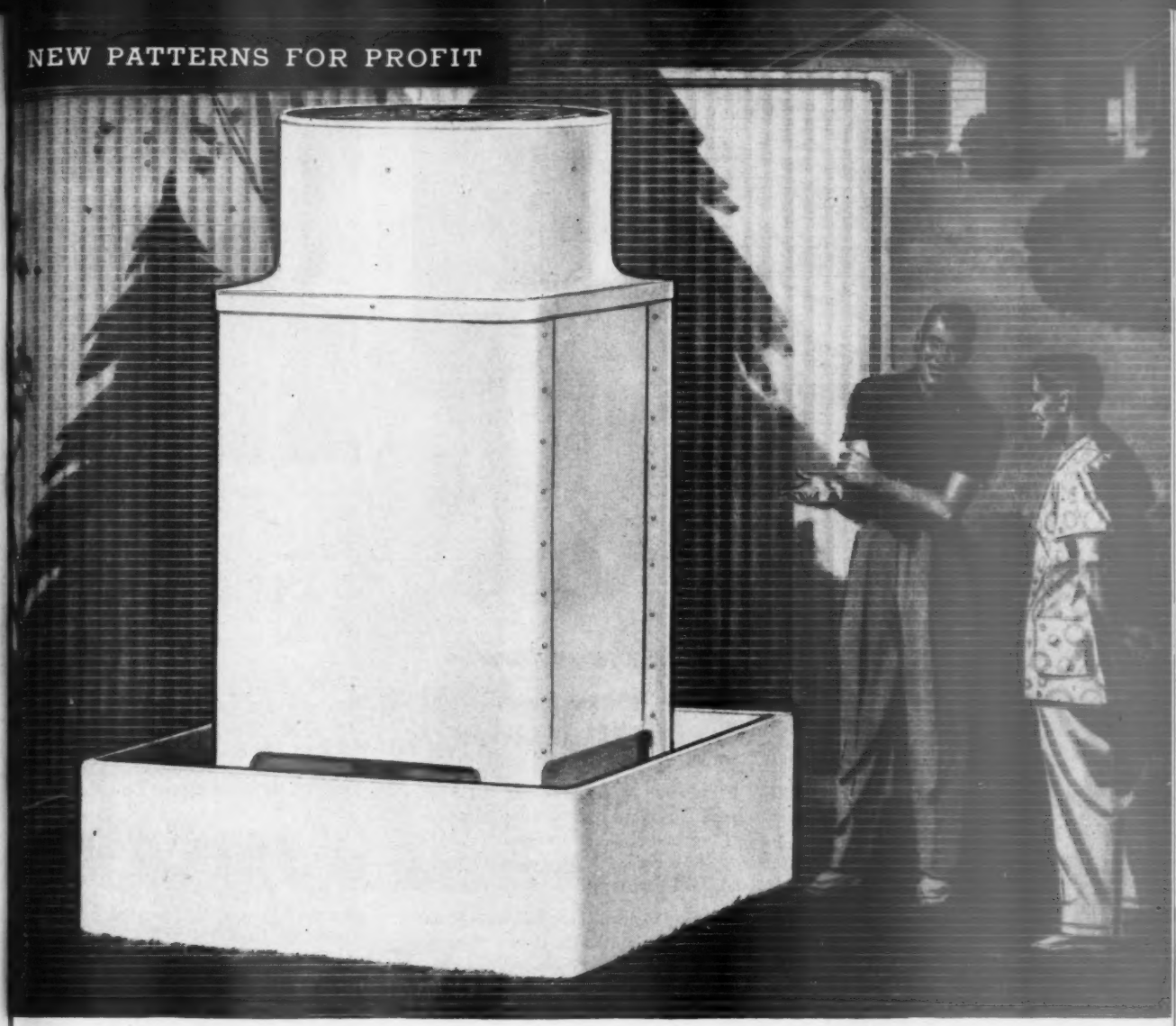
• **What It Can Do**—The college sees the Industrial Program as a business service, since the fee can be budgeted as a regular business expense. For small industries, it can supply data they are unable to develop themselves. It can keep large companies informed of work on subjects in which they are interested but have not had the time or personnel to explore fully.

George Granger Brown, dean of the Engineering College, looks for these results: "We expect that industrial representatives, after becoming better acquainted with University of Michigan research resources, will consult more with faculty specialists and invite them to conduct additional research in their particular fields. Faculty and students will gain from increased contact with industrial projects and personnel. Industry will benefit further from the promotion of engineering education."

Michigan's Industrial Program has only one definite subscriber at the moment plus six very good prospects. The staff is busy now selling subscriptions. A participating firm must enroll for a three-year period.

Cost has been held down to attract a large number of organizations, both big and small. The idea is to enroll a variety of firms throughout the country, representing a cross-section of industrial fields.

NEW PATTERNS FOR PROFIT



Could Easily Assembled Reinforced Plastic Cooling Towers Cut "Water Cost," Spur Built-in Home Air Conditioning?

Excessive water use—that's been a major drawback to built-in air conditioning for private homes... when a small "custom built" cooling tower was beyond the "budget." But a standardized, molded plastic cooling tower might be the answer!

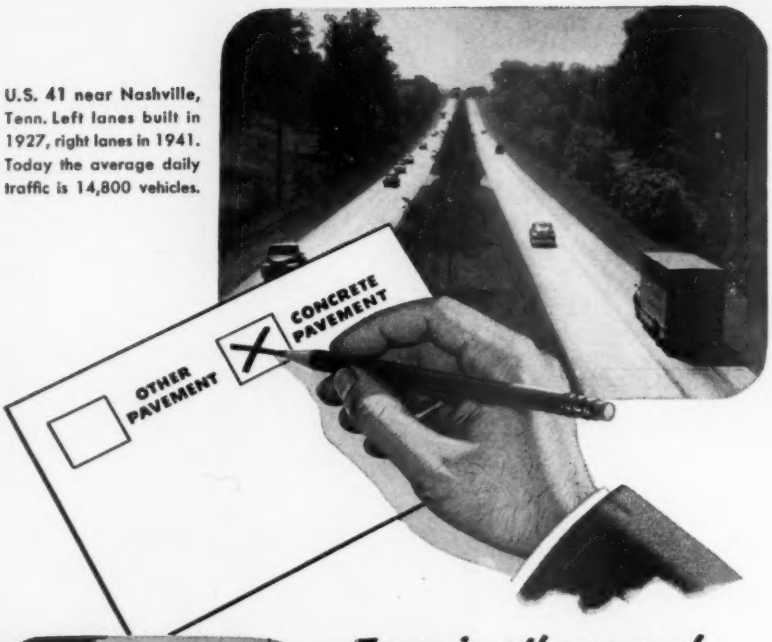
The "home size" cooling tower illustrated provides 48 cubic feet for standard redwood filling . . . consists of six pieces, easily assembled from just ***four*** separate moldings; could be shipped "knocked down." The attractive, colorful reinforced plastic is the same material used in glass-reinforced plastic sports car bodies, flat and corrugated building panels, molded bath tubs, and hundreds of other applications. It is a "no maintenance" material, light in weight, rot-proof, chemically resistant.

The cooling tower shown is a preliminary design . . . but worked out in all details except the filling. If you would be interested in manufacturing (or distributing) this tower, contact Monsanto. If you'd like to study a set of engineering drawings showing the design of the molded cover, sides, sump and details of assembly, send $1.00 to cover handling and mailing. Manufacturers who prefer to subcontract for reinforced plastic parts can reach reliable custom molders through Monsanto.

Monsanto is a major producer of **STYRENE MONOMER, PHTHALIC** and **MALEIC ANHYDRIDE,** and **FUMARIC ACID** . . . basic raw materials used in the manufacture of polyester resins. For application details, write or call **MONSANTO CHEMICAL COMPANY, ROOM 1203T, PLASTICS DIVISION, SPRINGFIELD, MASS.**

MONSANTO
CHEMICALS — PLASTICS

SERVING INDUSTRY...
WHICH SERVES MANKIND



U.S. 41 near Nashville, Tenn. Left lanes built in 1927, right lanes in 1941. Today the average daily traffic is 14,800 vehicles.

Examine the record—

Then Vote for Concrete Highways

Roads, like elected officials, should stand on their records. Today, motorists, whose gasoline taxes pay for roads, should examine that record, for America is engaged in a gigantic highway construction program.

Many existing highways are concrete roads such as shown here, built in the 1920's. Though carrying heavier loads and 2½ times the traffic they were designed for, they're still on the job. *This record merits your vote of confidence.*

Recent engineering surveys offer new evidence of concrete's exceptional durability. For example, practically all of the concrete roads ever built in Tennessee and Washington and 96% of those in Missouri are still serving.

Even such records will be surpassed. Improvements in design, materials and construction methods now enable highway engineers to build concrete roads to last 50 years and more.

Concrete's long life and low maintenance cost stretch your tax dollars. Other pavements rarely cost less if built for the same traffic load and their frequent and costly maintenance gobbles up funds that could better be used for building desperately needed new roads.

Vote for the best investment of your taxes by urging officials to pave main roads with concrete. Ask for free booklet, "*It's Concrete 11 to 1*," distributed only in U.S. and Canada.

Route 26 near Norway. Built in 1926. Average daily traffic, 2,500 vehicles.

Route 15 near Ottsville. Built in 1923. Average daily traffic, 4,100 vehicles.

U.S. 31 near Birmingham. Built in 1921. Daily traffic today is 23,700 vehicles.

U.S. 66 near Los Angeles. Built in 1927. Daily traffic today is 26,800 vehicles.

PORTLAND CEMENT ASSOCIATION

Dept. 10d-12, 33 West Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete... through scientific research and engineering field work

PRODUCTION BRIEFS

Remote pumping stations that feed gas pipelines ordinarily need men right there to operate them. Last week, General Electric Co. exhibited the electronic system shown above, which does the job from miles away. Messages to and from the station are carried by microwave radio.

•

Allied Chemical & Dye Corp. entered the fast-growing petrochemical field last week, opening a new chlorinated methane plant at Moundsville, W. Va. Output will go to producers of such products as silicone resins, plastics, and pharmaceuticals.

•

An 8,000-ton forging press three stories high, and two 4,000-ton presses, are included in a major expansion program at Harvey Aluminum's plant in Torrance, Calif. By 1955, the company's forging operation will be the largest in the western U. S.

•

Iron ore trend: Republic Steel Corp. has sold its Penokee iron mine in Michigan. That could be the forerunner of other such moves by steel companies. A steel firm with a big investment in taconite beneficiation plants, or in mines in Canada or South America, is likely to use these ores, dispense with its high-cost mines near Lake Superior.

•

Aluminum subway cars are going to get a tryout in Toronto. With the lighter aluminum cars, this most modern subway city (BW—Apr.17'54,p170) figures it will save on power consumption and maintenance.

•

Counterfeiting: A decree permanently enjoining Brakes, Inc., Long Island City, N. Y., has been entered by the U. S. District Court, Eastern district of New York, as the result of a complaint charging counterfeiting of parts and trademark infringement (BW—Sep.11 '54,p182). The complaint was filed by Bendix-Westinghouse Automotive Air Brake Co., Elyria, Ohio.

Traffic Engineer, *junior grade*

Bobby's kind of "junior traffic engineering" solves part of the traffic hazard at this particular corner. It takes care of the safety of those precious small pedestrians. But such "junior traffic engineering" has little realization of the necessity for keeping traffic moving. Nor can it be called upon to solve any of the many other problems of adequately accommodating metropolitan traffic.

Untangling the city's traffic jams, replanning the city's streets to take care of today's and tomorrow's needs, finding places for both workers and shoppers to park calls for a special kind of thinking and planning. It calls for the same kind of vision that designs and builds turnpikes and bridges. It calls for the special skills and knowledge of the engineer . . . "senior grade" . . . experienced and trained in complete solutions.

Speeding traffic flow, eliminating congestion, finding parking spaces are just a few of the many services the engineer performs for the city and its residents.

It is the engineer who finds the way to bring us safe water to drink, designs the dams that create our power, plans the sewers and disposal systems that remove the fear of pestilence and plague, creates the highways and bridges that bring the world to our door.

Working with municipal authorities, with private owners, with contractors, with financiers, the engineer supplies the "how" that clears the path for the collaboration that sets the pace of progress and brings us tomorrow's world today.

Gannett Fleming Corddry and Carpenter, Inc.

Harrisburg · Pennsylvania

PITTSBURGH, PHILADELPHIA, DAYTONA BEACH

Engineers

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St. Paul 6, Minnesota BW-104

Please send me a free copy of the new edition "Executive's Manual." I understand there is no cost or obligation.

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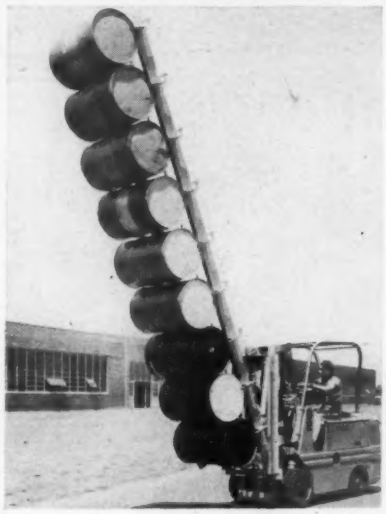
TITLE_____

COMPANY_____

ADDRESS_____

_____

NEW PRODUCTS



Handling Empty Drums

The Yale & Towne Mfg. Co. has introduced this 224-in. boom attachment for handling of empty oil drums. It mounts on a standard Yale 4,000-lb. truck.

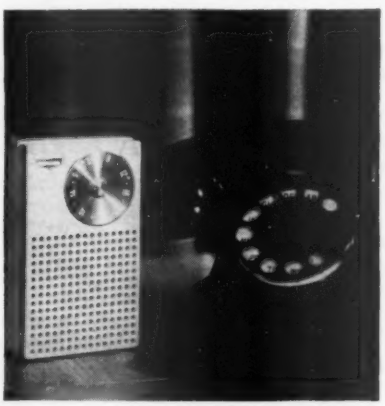
Hydraulically actuated clamps grab all nine drums at once, hold them while they are being transported and stacked.

• *Source: The Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa.*

Power Mower Plus

This new power mower was announced last week by the Pennsylvania Lawn Mower Div. of American Chain & Cable Co. Manufactured in two gasoline models and one electrical model, its blade has a rotary action, giving greater vacuum action and self-cleaning features.

• *Source: Pennsylvania Lawn Mower Div., American Chain & Cable Co., Inc., Exeter, Pa.*



All-Transistor Radio

This pocket-size radio was announced last week by the Regency Div. of Industrial Development Engineering Associates, Inc., which says that it is the first all-transistor radio to come on the market.

It weighs less than 12 oz., needs only a single miniature battery for power. Retail: $49.95.

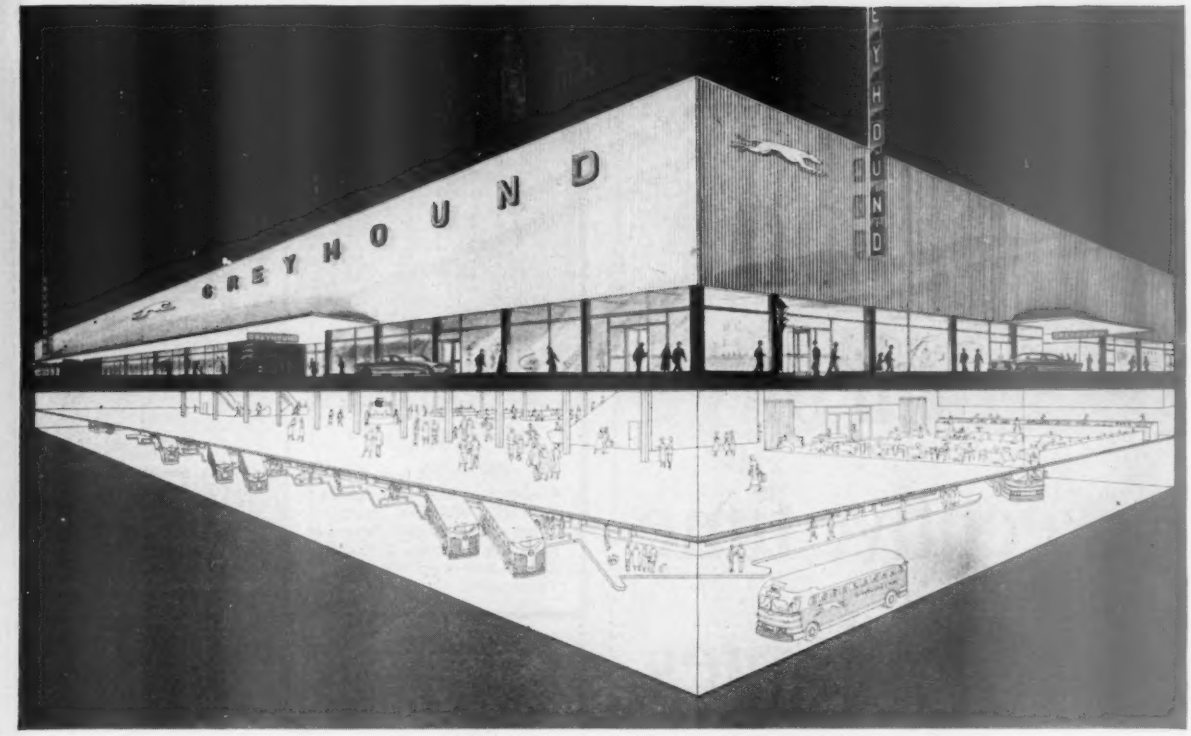
• *Source: Regency Division, Industrial Development Engineering Associates, Inc., 7900 Pendleton Pike, Indianapolis, Ind.*

Built-in Adhesive

The new floor tile that has been put down in the picture had its adhesive coated onto its back before it was shipped from the factory. All the do-it-yourselfer has to do is peel off a thin sheet of plastic film, put the tile in place.

The manufacturer—Robbins Floor Products Inc.—says it is made from Marvinol vinyl plastic, a product of Naugatuck Chemical Div., U.S. Rubber Co.

• *Source: Robbins Floor Products Inc., Tuscumbia, Alabama.*



GREYHOUND'S NEW CHICAGO TERMINAL • OWNER: CHICAGO GREYHOUND TERMINAL, INC.

ARCHITECTS-ENGINEERS: *Skidmore, Owings & Merrill, Chicago*
GENERAL CONTRACTORS: *John W. Harris Associates, Chicago*
HEATING CONTRACTOR: *Gallaher & Speck, Inc., Chicago*
VENTILATING CONTRACTOR: *Mehring & Hanson Co., Chicago*

New Greyhound terminal has basement in the "attic"

AMERICAN BLOWER equipment helps provide country-fresh conditioned air for Greyhound's unique new Chicago depot

How do you build a bus terminal in downtown Chicago and avoid "Loop" traffic jams? Greyhound used a unique design, with bus tunnels 25 feet below street level. The resulting ventilation problem was solved with American Blower equipment.

For the bus-concourse level, with its open-ended tunnels, had to be cleared of exhaust fumes – to keep them from filtering up into the air-conditioned waiting room, restaurants and shops.

To overcome this obstacle, and save valuable space, air-handling equipment was installed in the top levels – putting equipment, usually in the basement, up in the "attic." American Blower Fans exhaust fumes and stale air from all levels, and circulate clean, conditioned air – slightly pressurizing the building, and creating an ideal indoor climate.

Perhaps American Blower can help *you*. Each of our representatives is a qualified engineer, with a complete knowledge of air handling and air conditioning equipment–and is prepared to give "on the spot" information.

Modern waiting room is two floors high. Greyhound terminal is geared to handle 120 buses an hour; 18,000 passengers daily.

American Blower equipment in this building includes: 22 HS Fans, 9 Air Conditioning Units, Utility Sets and Ventura Fans.

AMERICAN BLOWER CORPORATION, DETROIT 32, MICHIGAN
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONTARIO
Division of American Radiator & Standard Sanitary Corporation

AMERICAN BLOWER

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

How to save $10,000 worth of executive time in 10 minutes

If you are looking for a plant location——

. . . a ten-minute trip across this page may save you $10,000, or more in executive time.

Just take a pencil and check the plant-site factors you consider important. Then accept our invitation for a confidential conference to discuss the specific details of the checked factors essential to the future success of your business.

It's a simple short cut that can easily save you time and money, and assure your new plant of every possible advantage.

Check this list of Plant Location Factors to get the combination you need.

For that just right plant site—
Look to the American Gas and Electric area of industrial opportunity

OPERATING SUBSIDIARIES

APPALACHIAN ELECTRIC POWER COMPANY
INDIANA & MICHIGAN ELECTRIC COMPANY
KENTUCKY POWER COMPANY
KINGSPORT UTILITIES, INC.
THE OHIO POWER COMPANY
WHEELING ELECTRIC COMPANY

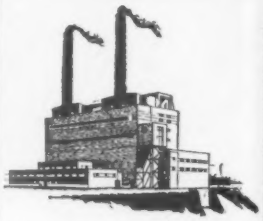
☑ *Check this list of*

ACCESS TO MARKETS

Is nearness to markets important?

☐ IMPORTANT

The AGE System runs through the heart of industrial America —serving important manufacturing and population centers in Michigan, Indiana, Ohio, Kentucky, West Virginia, Virginia, Tennessee.



POWER

Is power important to your operation?

☐ IMPORTANT

AGE is one of the largest, most modern private power systems in the world. It offers unlimited power, day and night, for any type of industrial operation.

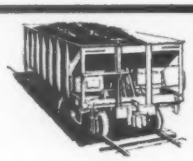
MINERALS

Are certain minerals important?

☐ IMPORTANT

AGE offers an abundance of more than 20 important minerals, including:

☐ COAL ☐ IRON
☐ SALT ☐ OIL
☐ SAND ☐ ZINC
☐ LEAD ☐ GAS
☐ MANGANESE



FUEL

Is fuel important to your operation?

☐ IMPORTANT

Approximately 50% of the bituminous coal produced in the U. S. is mined along the AGE System. AGE territory also has many natural gas areas, and important oil and gas pipelines to tap from.

LABOR

Do you need a specific type of labor?

AGE territory includes a huge pool of the finest types of labor, both male and female:

☐ IMPORTANT

☐ TECHNICAL ☐ SKILLED
☐ MECHANICAL ☐ UNSKILLED

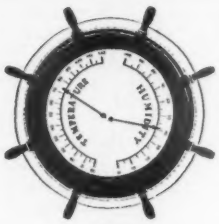
TRANSPORTATION

Is economical access to sources of raw materials and large markets an advantage to you?

☐ IMPORTANT

AGE offers you a unique balance between raw materials and markets. It also offers 18 main line railroads, rivers, thousands of miles of modern highways, and leading airlines facilities—assuring you the most advantageous position on transportation rates and delivered cost of your products.

Plant Location Factors to get the combination you need.



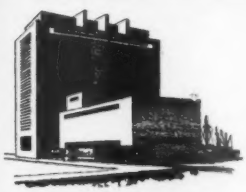
CLIMATE

Are climatic conditions a factor in your business?

☐

IMPORTANT

The seven-state area served by the AGE System—stretching from Lake Michigan to the North Carolina border—offers a wide range of climatic conditions from which to choose the one that meets your requirements.



DISTRIBUTION FACILITIES

Are distribution facilities important?

☐

IMPORTANT

Excellent storage and warehouse facilities and other efficient aids to the movement and transfer of goods are available in AGE territory.

RECREATION

Are recreational facilities an important consideration?

☐

IMPORTANT

The AGE territory offers excellent recreational facilities—good camping, proximity to National Parks, lakes and rivers, good fishing and hunting, modern highways, historical spots, high hills and deep valleys.

LIVING CONDITIONS

Are living conditions important?

☐

IMPORTANT

AGE territory offers you 2300 communities, adequate housing, a wide range of living conditions to choose from.

REASONABLE TAX RATES

Is a favorable tax structure important?

☐

IMPORTANT

AGE territory offers a choice of favorable tax structures. Your special requirements will be carefully analyzed.

WATER

Is water for processing important?

☐

IMPORTANT

AGE territory offers 18 rivers and abundant ground water for processing.

FORESTRY

Are woods and other forest products important?

☐

IMPORTANT

There are thousands of square miles of forest in AGE territory including pulp woods and soft and hard woods for many uses.

ACCESS TO SEAPORTS AND LAKEPORTS

Is access to major seaports or lakeports an advantage to you?

☐

IMPORTANT

AGE can offer you easy access to 4 major Atlantic seaports and ports on 2 Great Lakes.

MEMO

FROM THE MANAGER
OF AREA DEVELOPMENT DIVISION

AMERICAN GAS AND ELECTRIC COMPANY
30 CHURCH STREET, NEW YORK 8, N. Y.
TELEPHONE, CORTLANDT 7-5920

To Executives of Expanding Industries:

If you will write, or call me, I'll be glad to arrange confidential conferences with executives familiar with the resources of our territory. They are experienced in briefing plant locations according to the needs of individual industries. There will be no obligation. All we have to sell is power, enough to meet the needs of all industries now located or that may want to locate on our lines because of the economic advantages the AGE area offers.

Sincerely yours,

Lee L. Davis

Lee L. Davis

Rockwell Report

by W. F. ROCKWELL, JR.
President
Rockwell Manufacturing Company

IN A RECENT REPORT we mentioned the danger, in a diversified company, of unconsciously giving secondary treatment to any one product or product line. Briefly we highlighted our method of minimizing that danger by making each product line important to the personal success of key production and sales people.

That method works, we feel, because it utilizes basic human motivations. But for exactly that same reason, it creates a potential danger of its own: That of keeping *unprofitable* products in a line because they may be dear to the hearts of the men responsible for them.

A check and balance is needed. We provide that through our Products Committee, an advisory group made up of production, sales, engineering, market research, financial and administrative people. This committee meets periodically to consider the profitability, competitive position, and future market possibilities of each product in the light of over-all company plans.

If profit on a product is down, is it because the market has shrunk, or sales policies are wrong, or does the product itself need redesign or improvement? Does the market potential justify the cost of redesign or retooling to change or replace the product? Or even if a product has limited market potential in itself, perhaps it is wise from the customer-relations standpoint to continue it to round out the line.

In practice, the Products Committee balances the over-all company viewpoint against the enthusiasms and ambitions of individual product sales and manufacturing men. We feel it is a valuable aid in helping us maintain the long-range stability of bigness without losing the alert adaptability of smallness.

* * *

The Rockwell-Nordstrom valve has been so widely used for so long in the petroleum and gas industries that in the minds of some it was "typed" for those services only. It was also typed as being high-priced. Naturally, we have tried to correct both erroneous impressions, and it is gratifying to see so many buyers in the paint, paper, chemical and other industries recognizing the long-range economy of our lubricated plug valve. In our own new Sulphur Springs plant, over 300 Rockwell-Nordstrom valves control the sprinkling, air-conditioning and distribution lines.

* * *

Today there are almost 14 times as many Rockwell shareholders as there were just nine years ago. Our dividend checks are mailed to people in each of the 48 states, the District of Columbia, various U. S. territories and possessions, Canada, and three other countries. We have been told that last year trading in our shares was greater than in 60% of the companies whose shares are listed on the "big board." It is always gratifying to know that more and more people think well enough of one's company to invest their money in its future.

* * *

New Rockwell Products: Our Delta Power Tool Division has introduced a new 6" jointer for woodworking shops, industrial maintenance departments, and shipping rooms. Most important of several new time and cost-cutting features is the 42½" bed, longest on any jointer in its price range . . . A new line of lower-priced stainless steel Rockwell-Nordstrom lubricated plug valves is being marketed by our Meter and Valve Division for use in food, plastic, sulfite pulp, chemical and other plants where corrosion is a problem . . . "Return-O-Matic" is the name of a new fare box for buses developed by our Register Division. It not only expels foreign objects put into it (paper clips, bobby pins, keys, etc.) and registers the amount of fare paid, but also returns the fares so the bus driver has a steady supply of small change.

One of a series of informal reports on the operations and growth of the
ROCKWELL MANUFACTURING COMPANY
PITTSBURGH 8, PA.
for its customers, suppliers, employees, stockholders, and other friends

NEW PRODUCTS BRIEFS

A snow plow that you can attach to the front of your car has been announced by Meyer Products Co., 3599 East 82nd St., Cleveland. Weight: 100 lb. Retail: $115.

•

A heater for drive-in theaters has been announced by Arvin Industries, Columbus, Ind. The theater owner hooks it onto the same post that holds the speaker unit. The manufacturer thinks it will mean year-round business for outdoor theaters.

•

Fly killer: The Florida Agricultural Supply Co., of Jacksonville, has developed a fly control product—Fly Flakes—that can be scattered by hand. It kills flies in two to three minutes, keeps working for several days.

•

A new kind of governor for trucks and passenger cars has been announced by Asco-Midwest Corp., Dearborn, Mich. It controls only road speed, not engine speed, so an engine can run at full tilt if it's pulling out of heavy snow or mud, or when climbing a hill.

•

A telephone that almost hangs itself up has been announced by the Automatic Electric Co., 1033 West Van Buren St., Chicago. The company claims that no matter how carelessly it is hung up, the handset automatically slides back into its cradle. This, says Automatic Electric, could save a telephone company of 80,000 telephones up to $345 a month by eliminating off-hook difficulties.

•

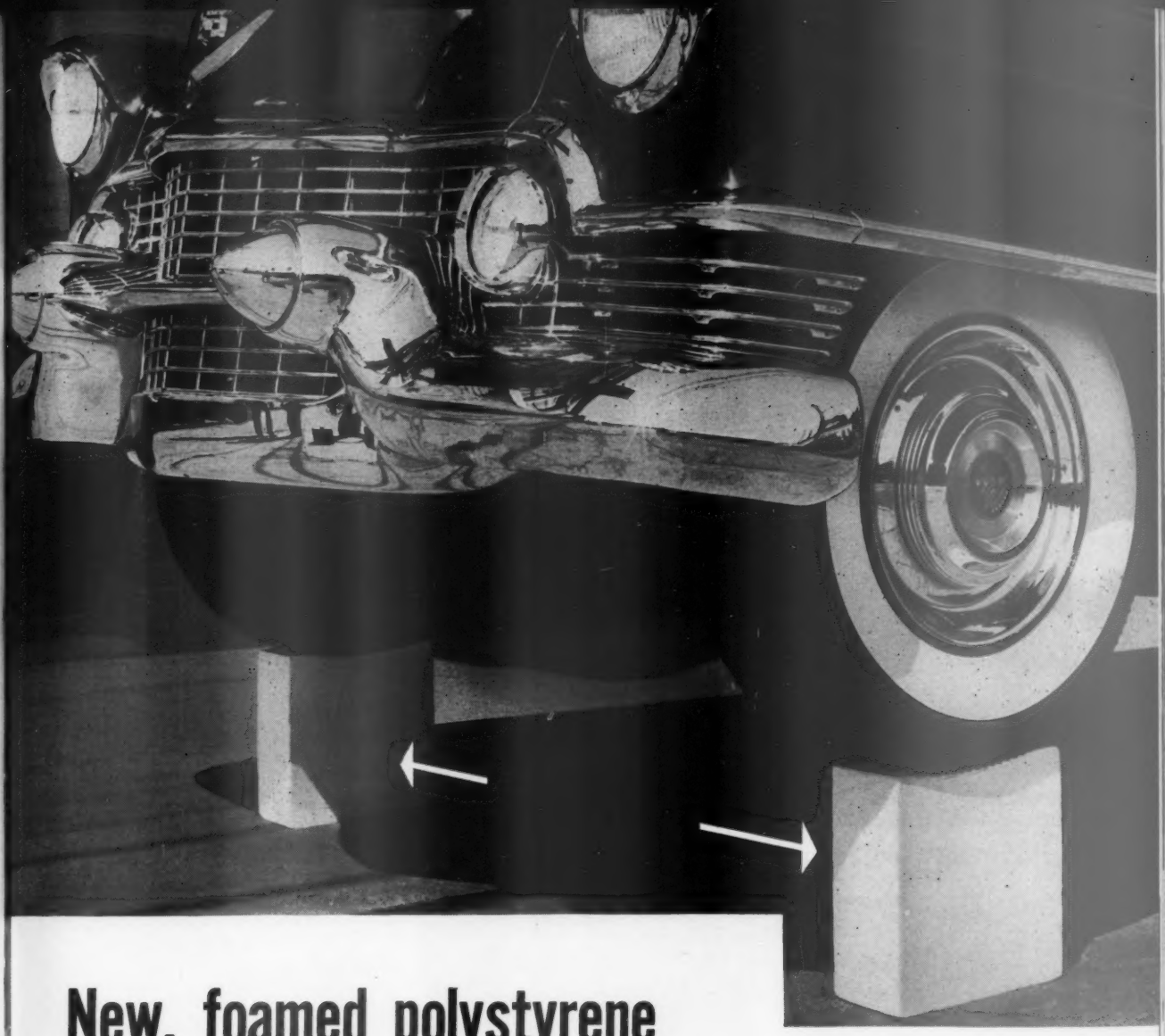
V-8 for Reo: Reo Motors, Inc., Lansing, Mich., is using V-8 engines for the first time. The new truck units come in two sizes—195 hp. and 220 hp., but the company will still make its 160 hp., six cylinder engine.

•

More efficient sun power: Bell Labs said last week that its solar battery, announced six months ago (BW—May1 '54,p100), is already a third more efficient. Now it's comparable to the operating efficiency of steam and gasoline engines.

•

For farm communities too remote for the usual telephone service, Raytheon Mfg. Co., Waltham, Mass., has developed a microwave relay system that needs no wires, can handle up to 20 families. It is not the first such system to come along, but Raytheon claims that it is the cheapest. It can send a message 50 miles.



New, foamed polystyrene holds up under crushing weight!

KOPPERS Expandable Polystyrene is light as a pillow, yet it can support huge weights like the front end of this 4600-pound automobile. Actually the two low density plastic blocks in the picture are over 90% air by volume—and more amazing, they can carry up to a ton apiece without damage.

Foamed polystyrene is lighter than cork, ideal for use in life rafts, buoys and boats. And packages made with this plastic will resist shock and protect contents from damage.

The new plastic's low K factor (K=0.24) and high resistance to moisture also make it ideal for low temperature insulation.

Koppers Expandable Polystyrene comes in sugar-sized granules. You can mold it in *any* shape you want, and the density can be controlled. Molding equipment is inexpensive. And, because expandable polystyrene is sold in bead form, shipping costs are less than for expanded plastic sheets and logs.

If your product requires these features: lightness of weight, insulating properties, smoothness, paintable surfaces, strength and precisely molded features, Koppers Expandable Polystyrene is the right choice. For more information write for a copy of our free, illustrated booklet.

Koppers Plastics

KOPPERS®

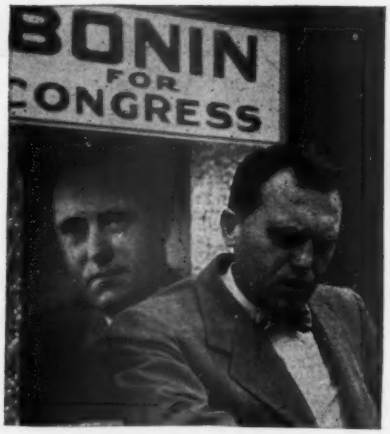
KOPPERS COMPANY, INC.

Chemical Division, Dept. BW-10234, Pittsburgh 19, Pennsylvania

Sales Offices: New York · Boston · Philadelphia · Atlanta · Chicago · Detroit · Los Angeles

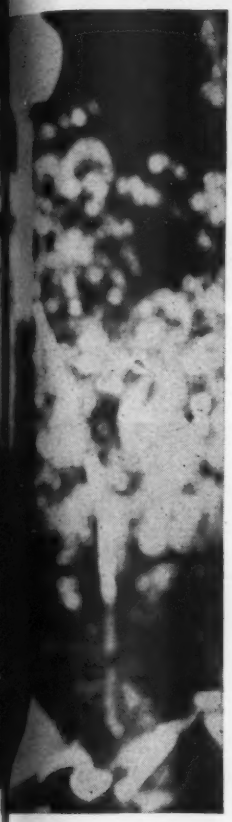
Koppers Plastics ***make many products better and many better products possible.***

REPUBLICAN Rep. John Saylor campaigns in Johnstown, his home town. A real extrovert, he relies on a man-to-man approach, counts on shaking at least 500 hands per day. Union labor berates Republicans for their economic woes but votes for Saylor.



REPUBLICAN Rep. Edward J. Bonin of Hazelton won a close race in 1952. He counts on GOP organization and Luzerne County's 100,000 voters of Polish ancestry (like himself) to pull him through again in his contest with . . .

DEMOCRAT Daniel J. Flood of Wilkes-Barre, who has been elected to Congress three times despite 3-to-1 Republican advantage in registration. "I don't know how Flood does it," says Flood. "I guess it's partly showmanship."



POLITICS

Heavy unemployment and a rising tide of resentment against Gov. Fine's administration in Pennsylvania threaten to unseat several GOP congressmen and to elect a Democratic governor. A Democratic victory in the state would in itself virtually guarantee a Democratic majority in the House. This week, Business Week sent a reporter into Pennsylvania to find out if superior organization and Republican tradition can halt the Democratic tide.

The Grassroots Battle To Win Pennsylvania

(Story continues on page 122)

DEMOCRAT Robert H. (Pop) Jones, Scranton recreation director and former high school coach, has a fighting chance against Rep. Joseph L. Carrigg in the Tenth District.

WASH DAY...

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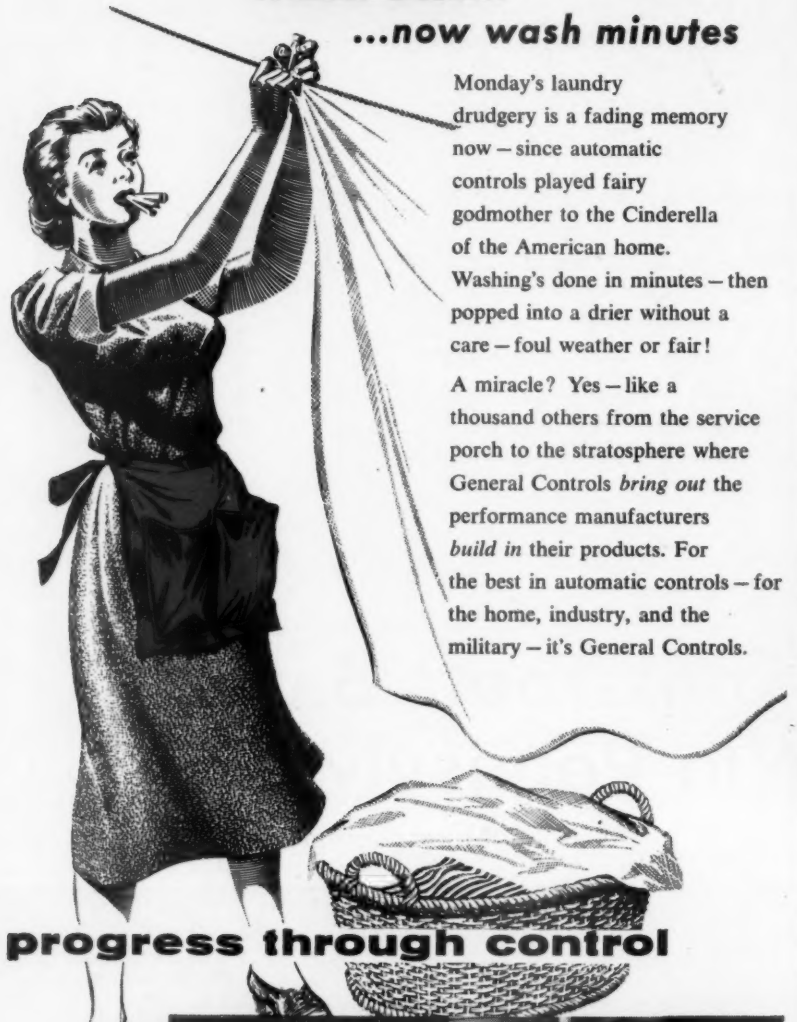

Monday's laundry drudgery is a fading memory now – since automatic controls played fairy godmother to the Cinderella of the American home. Washing's done in minutes – then popped into a drier without a care – foul weather or fair!

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DEMOCRATIC BOSS James A. Finnegan, Philadelphia City Council president, says:

GOP BOSS G. Mason Owlett is president of the Pennsylvania Manufacturers Assn.

(Story starts on page 121)

Politically, Pennsylvania is a pivotal state, with enough population to swing a lot of Congressional seats one way or the other and with the major parties so closely matched as to make an upset quite possible.

In Pennsylvania this year, the Democrats are acting like winners. They talk of electing a governor–something they haven't done in 20 years. And they talk of picking up enough Congressional seats to guarantee Democratic control of the House.

That adds up to big talk in a state that has nearly 1-million more registered Republicans than Democrats, that has a far stronger Republican organization than Democratic. The Republicans are entrenched at Harrisburg, the state capital; in Washington they hold both Senate seats and have a 19 to 11 margin in the House.

Yet the Democrats think they have issues working for their side that can overcome the advantages of Republican organization and Republican money.

• **Disaffection**–The Democrats' optimism is based largely on unhappiness in the 28 labor distress areas in the

"A strong tide comes from disillusionment with the Administration in Washington . . .

". . . and disgust with Gov. Fine's administration in Harrisburg."

"To win," Owlett says, "the Democrats have to pile up big majorities . . .

". . . in Philadelphia, in Pittsburgh, and in the hard and soft coal areas."

state. Three big industries are affected: coal, with 16% unemployment in the anthracite area around Wilkes-Barre; railroads, with more than 9,000 laid off at the Pennsylvania RR shops at Altoona; steel, 6% to 12% unemployment around Johnstown and Pittsburgh.

Besides, the Democrats hope to cash in on animosity toward Republican Gov. John Fine that is even more widespread than the unemployment. This opposition comes more from Fine's methods than his program. As one county GOP boss put it this week: "Even when John Fine does the right thing, he does it the wrong way."

• **Uphill Fight**—For all their confident talk, the Democrats know they are in an uphill fight. Issues, even those that affect the voter's pocketbook, are no substitute for organization, which the Republicans have from one end of the state to the other.

The best the Democrats can hope for is that a lot of Republicans are discontented enough to stay home on Election Day. In Pennsylvania, a Republican has to be pretty mad before he will vote Democratic.

• **Governor Race**—National interest is in the Congressional races that Pennsylvania can decide, but the fortunes of those candidates are bound up in the campaign for governor. Last spring, there was no "natural" candidate for governor in sight.

The Republicans were split between factions led by National Committeeman G. Mason Owlett (pictures, above) and Sen. James Duff. They finally turned up Lieut. Gov. Lloyd H. Wood as the only acceptable compromise candidate.

Democratic prospects looked so lean that such well-known men as District Attorney Richardson Dilworth of Philadelphia and former Sen. Francis Myers declined to run. The party finally came up with George M. Leader, 36-year-old York farmer who is in his first term as state senator.

Leader started campaigning early, got Wood off balance with an aggressive attack on TV, and keeps jabbing at Wood's support of the unpopular 1% state sales tax and of the equally unpopular Gov. Fine. Republicans feel that Wood is off the defensive now

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and is closing the gap. To win, Leader must run up huge majorities in Philadelphia, Allegheny County, and the coal regions, to offset the GOP's usual lopsided margins in suburban Philadelphia and 40-odd traditionally Republican counties across the state.

• **House Seats**—Nine Congressional seats in the state were filled in 1952 by a majority of 55% or less of the vote. Eight of these seats are in districts that are plagued by unemployment. Three of the nine seats are held by Democrats; only one of these appears to be in danger.

Of the six marginal seats held by Republicans, at least five would be lost if Leader won the governorship by a margin of more than 100,000 votes, according to state politicians. Regardless of that outcome, two and possibly three seats are almost certain to go Democratic.

• **Philadelphia**—As a result of their sweep in 1952, Democrats hold five of the six seats in Philadelphia. Two Democrats won their places with less than 55% of the vote, as did the lone Republican who survived the landslide.

Until a month ago, all five Democratic seats—and the state ticket, too—were in jeopardy because of a feud between Mayor Joseph S. Clark (BW—Sep.25'54,p82) and Democratic city chairman Bill Green over the new city charter. After sweeping the city by 162,000 in 1952, the Democrats lost a municipal election last year by 16,000. Clark accused Green of teaming up with the Republicans in an effort to kill off the new charter.

Last week, Clark and Green faced up to the grim realities and held a public love feast at City Hall.

"The hatchet is buried," boyish Mayor Clark said, grinning, "and we're going right down the line together."

Green nodded grimly and headed back to his campaign headquarters in the Fifth District where, as one of the marginal congressmen, he faces a tough fight for reelection.

• **Congressional Rundown**—The tangle of national, state, and purely local issues shows up all through the campaigns in key districts of Pennsylvania. Here's how these contests stack up, district by district:

Third—Traditionally Republican, but Democrat James A. Byrne won in '52. He is being pressed hard now by Charles H. Sporkin. This is rated as the Democrats' toughest race.

Fifth—Registration is 3 to 1 Republican, yet Rep. Green got 105,000 of the 190,000 votes cast in 1952. In seeking his fifth term, Green counts on a hard core of 75,000 organization votes, plans to concentrate on the district's 25,000 swing votes.

Sixth—Hugh Scott, former Republican national chairman, won in 1950 by 403 votes and in 1952 by 6,244. He is opposed by Democrat Alexander Hemphill, active in civic affairs and last year's Chestnut Hill "Man of the Year." An influx of city apartment dwellers into low-cost housing in what had been Philadelphia's toniest residential district has made the outcome doubtful. Scott says he can win even if the city goes Democratic by 100,000, but he's running scared and taking full advantage of Citizens for Eisenhower—one of few GOP candidates in the state to do so.

Tenth—Republican incumbent Joseph L. Carrigg of Susquehanna is opposed by Robert H. Jones (picture, page 121), Scranton recreation director and former high school coach. The district includes Democratic Lackawanna County and five rural Republican counties. Jones is campaigning hard in the rural counties, cashing in on discontent of Republican farmers, but the odds are on Carrigg.

Eleventh—Luzerne County (Wilkes-Barre) is the anthracite capital of the world, the home of Gov. Fine, and the most baffling political puzzle in the state. In registration, Republicans outnumber Democrats by more than 3 to 1, yet the district has sent Irish Democrat Daniel J. Flood (pictures, pages 120 and 121), to Congress three times. In 1952, Flood lost by 588 votes to Edward J. Bonin (pictures, pages 120 and 121), but he is favored to take this year's return match.

Fourteenth—In 1952, this district (Berks County) went for Eisenhower but elected George M. Rhodes, Reading Democrat, to Congress. Republicans see little chance of unseating him with Donald F. Spang of Wyomissing.

Nineteenth—Republican S. Walter Stauffer won the seat by 6,000 votes in 1952, though he ran far behind Eisenhower. However, the district includes York, home of Democratic gubernatorial candidate Leader, whose local popularity gives the edge to Democrat James M. Quigley.

Twenty-second—Republican John Saylor (picture, page 120) won by 7,000 votes in 1952 while Eisenhower was losing the district by 3,000. He is one of few Republican candidates to get labor support (United Mine Workers). His opponent is Robert Glass, 40-year-old Johnstown attorney making his first bid for public office. Saylor is favored.

Twenty-fifth—Every election since 1938, the Democrats have been on the verge of unseating Republican Louis Graham of Beaver, and every time Graham squeaks in. His victory margins get steadily smaller, though. For the first time in years, he is actively campaigning. He may win again. His opponent, Chief of Police Frank M. Clark of Bessemer, is getting tepid support from the Democratic organization.

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Howard Johnson, who cranked an old-fashioned ice cream freezer into a restaurant empire, is crowding new frontiers. Now he's . . .

Putting the HJ Seal on Motels

Executives of Howard D. Johnson Co. shake their heads sadly when someone mentions the New York State Thruway. This is one turnpike in the East that won't sport 28 flavors of ice cream.

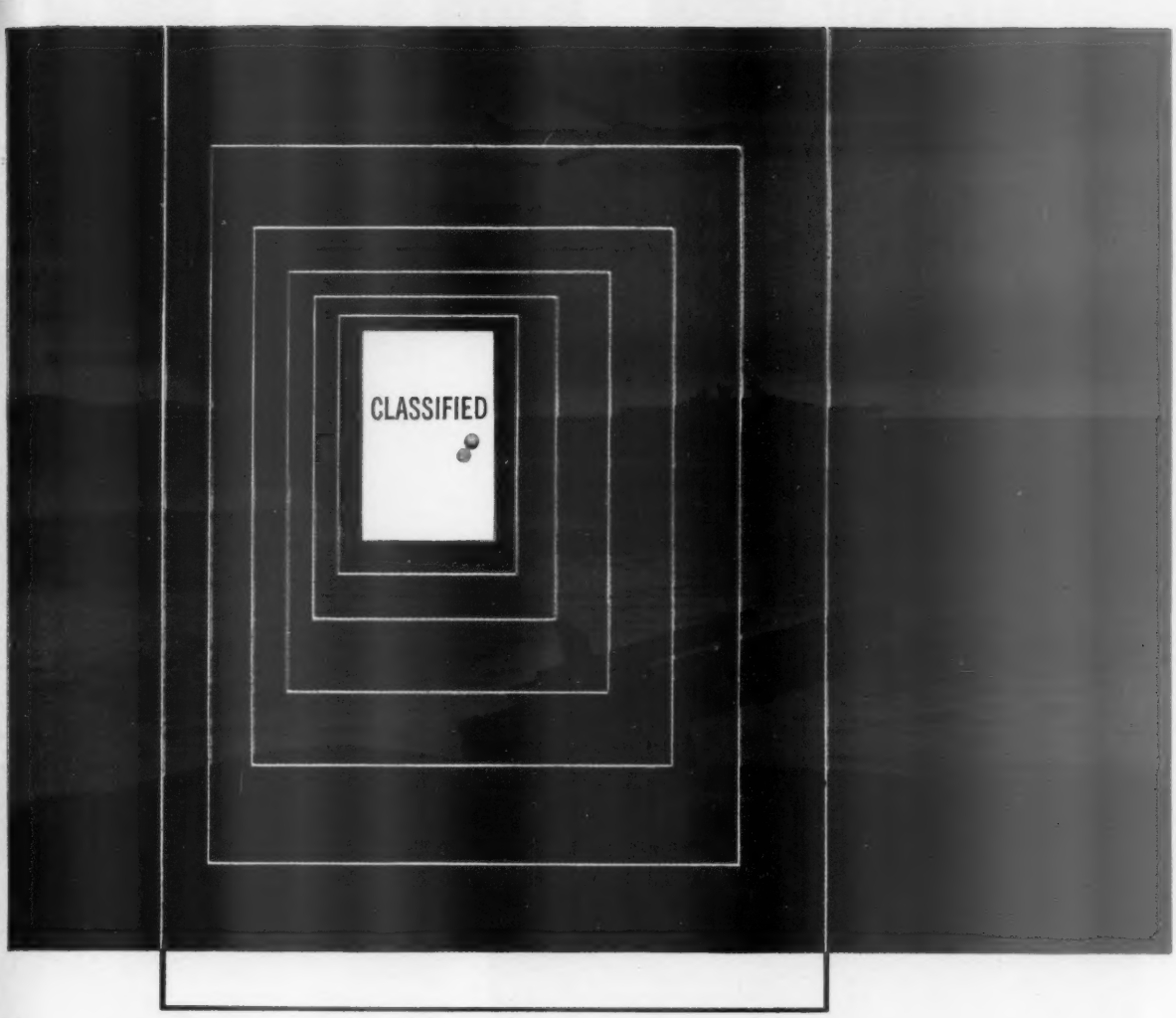
HJ's dejection on this score isn't sour grapes. It merely feels sorry for the touring public that won't eat the best of food at reasonable prices. "When you're on one section of the thruway," one executive morbidly points out, "you won't know what the food will be like on the next."

Howard Johnson first started to feed the turnpike crowd in 1941. The Pennsylvania Turnpike had awarded gas station concessions to Esso, leaving Esso to select the company that would operate the eating places adjoining the stations. Esso picked Howard Johnson—and Howard Johnson "won" its first turnpike concession. Since then, HJ restaurants have sprung up along most of the Eastern turnpikes.

Last July, the New York Thruway Authority decided to deal directly with restaurant companies. It split the concessions into three parts—New York to Albany, Albany to Utica, and Utica to Buffalo—and opened bids. HJ lost out completely when three restaurant companies bid higher.

• **Another Ace**—But nobody—particularly the competition—is worried about the future of the Howard D. Johnson Co. Since it opened its first modest restaurant in Quincy, Mass., in 1935, the company has expanded steadily into a restaurant empire. It has grown especially in the last three years. Today it fans out through 32 states, the majority east of the Mississippi River. Scattered over this area, on turnpikes, at major intersections, along country highways, and in the heart of cities, are approximately 400 restaurants.

Last year, HJ succumbed to the diversification bug. In October, it formed Howard Johnson's Motor Lodge Inc., and made its official entry into the motel business. It already has two motels in operation. Several others are being built, and 50 more are in various



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two-way unit is one reason why even ou
small company can afford a Micro-Twin.

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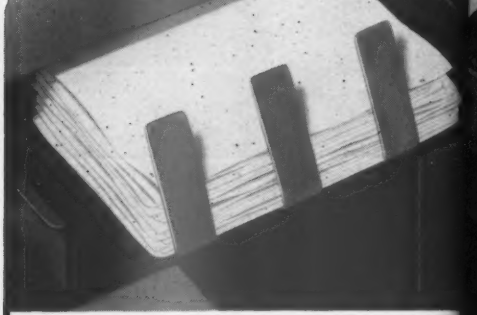

4. This tray restacks documents in the sam
order as they were fed into the Micr
Twin. It's all so easy! I don't have t
sort them, do any rearranging or worr
about making errors.

5.

6. To refer to microfilmed documents, I simply turn the camera control knob from *record* to *read*. Then I watch the viewer indexing dial for the reference number of the documents I'm looking for.

7. The image is big, bright and clear—eve
in broad daylight. And to make facsimile
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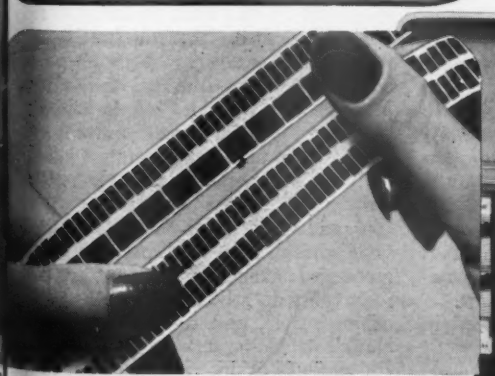

8. We can record in two ways—one side of each document, printing down one half of the film and up the other, or both sides of each document side by side, simultaneously, on the full film width.

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Ronald B. Peterson

Director, Industrial Location Service

stages of negotiations and planning.

Few people know exactly how extensive the Howard Johnson empire is. Even its executives say they can't keep track of the number of restaurants. The company has opened, on an average, one new restaurant every week for the past year. At the present time, there are more than 50 under construction.

Howard D. Johnson—the 55-year-old founder who still visits most of the new sites where HJ restaurants are to be built and who sets the tempo for all company operations—keeps profit figures close to his chest. He doesn't confide even in Bradstreet. But it's a fair estimate that the assets, which he and his son and daughter control, are well over $10-million. There are about 50 affiliated companies in the organization, and Johnson is president and treasurer not only of Howard D. Johnson Co.—the parent organization with main offices in Quincy, Mass.—but also of these myriad subsidiary companies.

• **A Natural**—To many observers, HJ's venture into motels was inevitable. "But," says one HJ executive, "we didn't go into motel operation earlier because of a reluctance to set foot outside our traditional business—restaurants."

HJ began changing its mind when it found, for example, that one franchised operator of an HJ restaurant had built motels behind his restaurant and was making a nice profit by exploiting the HJ name.

HJ's reasons for entering the motel business are simple enough. The fact is, says the company, you always want a motel near the place where you stop to eat. Conversely, you want a restaurant near the motel where you put up for the night.

• **Seal of Approval**—The company makes it clear that it merely franchises the use of its name and supervises construction and accommodation standards —about the same deal it uses in franchising restaurants. It neither builds nor operates the motels. The prospective operator has to finance his own way. However, HJ is conservative in the assignment of franchises. It carefully screens the background of the prospective operator. It also advises on motel location.

To build a motel, the prospective operator must already operate an HJ restaurant and have suitable land nearby, or—if he is starting in fresh as a motel operator—must be willing to build a restaurant too. HJ also gives franchises for existing motels, as long as they meet company construction standards and are near an HJ restaurant.

• **Terms**—But HJ insists on certain features. Among them, rooms must be fireproof or fire resistant; must have private baths and TV; and operators must provide 24-hour desk and telephone service. Tariffs fall into the $5-$12 bracket.

Under an HJ license, the operator receives a standard architectural design, building materials and components at a somewhat reduced price. He also gets, of course, the magic Howard Johnson name. HJ's side of the bargain involves an initial fee of $3,000 from the operator, and thereafter, 5% of the rental per guest room.

HJ is not sparing efforts to think up selling devices. From the start, it called its motels "motor lodges." The company feels that his euphemistic label puts its motels in the highbrow class. HJ also has adapted its Simple Simon motif to the motel signs by converting the pieman into a lamplighter, and using "Landmark for Sleepy Americans" instead of "Landmark for Hungry Americans."

• **On the Way**—The company opened its first motel at Savannah, Ga., six months ago. Since then, it has opened another at Fayetteville, N. C. A third will open at Indianapolis in a couple of weeks. Two more—at Tampa and Palm Beach—are under construction.

I. Growth of Restaurants

Howard Johnson's latest venture is a far cry from his modest start. His father was a cigar jobber, and when Howard returned from World War I, he began peddling cigars for his father. Among his customers was a newspaper stand on the corner next to HJ's present main offices. When the owner died, Johnson took over and set himself up as a newspaper distributor.

Shortly after, he installed a lunch counter. Then he tried his hand at making ice cream with an old-style freezer. His ice cream soon became so famous in the Quincy area that, in the late 20s, he hired a stand on Wollaston Beach, then another on nearby Nantasket Beach, and a third at Revere Beach, to sell his product.

When the Granite Trust Co. put up a new building in Quincy's business center, it asked Johnson to run the restaurant in the same building. HJ executives still eat there at lunch—and pay for their meals.

• **Franchise Idea**—In the early '30s, Johnson got the idea of franchising restaurants so they could use his ice cream. Two restaurant operators joined up with him, opened HJ-style restaurants in Dorchester (a section of Boston) and Orleans (on Cape Cod). It was Johnson's idea to use the blue-green and orange color scheme for the restaurants, to follow the New England colonial style, and to put a modified church steeple on restaurant roofs. The end product, as one customer remarked, looks remarkably like Mount Vernon.

Between 1936 and 1939, HJ's opera-

HOT ASPHALT pours into new Morania No. 160 barge. Double-hull construction and double heating coils are designed to maintain cargo at workable temperatures.

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At times we lose sight of the fact that considerable progress is being made in metal-working methods and in the design of machine tools. These two Rigidmils provide an interesting example of the progress made over a period of a few years. Although the operations are not identical, they are close enough for comparison. Machine in background was built in 1936. It has a manually operated index base which carries a fixture holding two connecting rods. Production is 30 rods per hour.

Rigidmil in foreground has automatic index base and magnetic holding fixture. Production is 400 connecting rods per hour.

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Additional Data

This new folder explains Sundstrand "Engineered Production" and what you can expect from its application to your metal working problem. Write today. Ask for bulletin BW3448.

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tions were confined to New England. Then the idea took hold in New York. "People started coming to us," one executive said. For the new restaurant owner, facing overwhelming competition from established operators, hitching his food wagon to the HJ name solved a lot his problems (BW—Oct.27 '51,p140).

II. Main Ingredients

If there is any recipe for Howard's success, you can single out two major ingredients: standardization and decentralization.

When you stop at an HJ restaurant, you know pretty well what you're getting into, no matter where you are. You may complain about waiting in line or about the food, but you know that the scoop of ice cream will be no bigger, no smaller, than at the last Howard Johnson's.

What you probably don't know is that the local manager is boss—within flexible limits set by HJ's main office. Even HJ-owned restaurants, which are one in 10 compared with franchised restaurants, run their operations on the premises.

HJ's expansion has been dependent upon commissaries and ice cream plants, which service both HJ-owned and HJ-franchised restaurants.

• **Behind the Boom**—Without these facilities, HJ can't count on standardized quality for the food it serves in its restaurants. Much of the operator's menu arrives frozen from the commissary. Charcoal-broiled steaks, for instance, are cooked at the commissary, frozen, and shipped to the restaurant operator for reheating. One explanation for HJ's recent boom is the number of commissaries, ice cream plants, and warehouses it has built or purchased within the past five years.

• **Family Affair**—Most of the restaurant leases are for 20 years, an occasional one for 99 years. But the company never franchises its turnpike restaurants (BW—Sep.6'52,p42). It considers them to be highly profitable operations. The New York State Thruway excepted, HJ's turnpike arrangements have followed a set pattern. The turnpikes ask HJ to operate restaurants, or the oil company with gas station rights approaches HJ—which either builds its own restaurants or works under lease from the oil company. On the Pennsylvania Turnpike, for example, HJ pays a certain percentage to Esso; Esso, in turn, pays a smaller amount to the turnpike—the difference going into amortization.

"You have a captive audience on a turnpike," says one HJ executive (BW—May8'54,p186). "If the turnpike is long enough, you know the motorists will have to stop somewhere for food."

A WHIRLPOOL SPIRALS into the inlet of a model pump. This unique picture shows how air, a common cause of pumping trouble, was carried into the pump in . . .

The Case of the Baffled Whirlpool

Some time ago, the report reached us that two Worthington vertical turbine pumps installed by one of our customers weren't working right. They delivered plenty of water, but vibrated badly and burned out bearings.

The customer asked us to find the trouble fast. After checking we knew the pumps were okay, so Worthington research had to answer him.

First thing we did was to build a one-tenth scale model of the customer's installation. The photo shows what happened when we started pumping.

A whirlpool immediately formed between the water surface and the pump inlet. Air, trapped in the whirlpool and carried into the pump, turned out to be the villain in the case.

The solution came with experimentation. A simple baffle arrangement in a side channel eliminated the whirlpool — and the trouble-making air.

Chasing the gremlins from pump installations, boosting the efficiency of heat transfer in air conditioners, developing better seals for pumps and compressors — these are all in the day's work for Worthington's busy research engineers. At Worthington, research ranks right alongside engineering, production, and sales to develop better products for industry. Worthington Corporation, Harrison, New Jersey.

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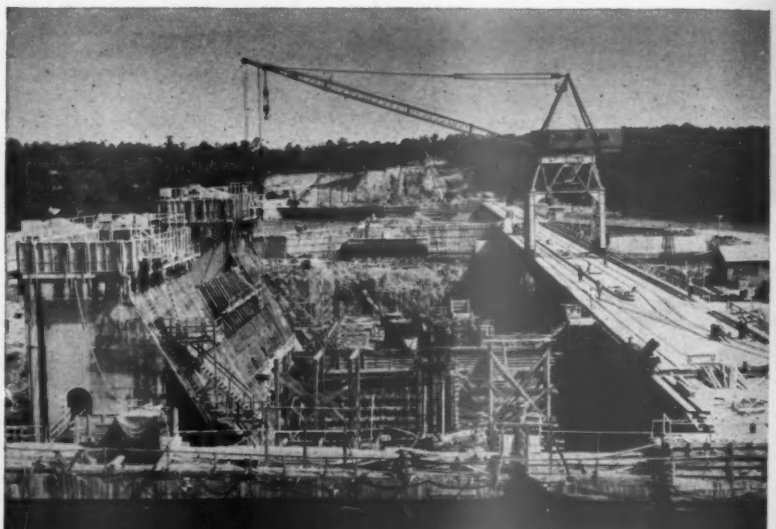

. . . With a Power Project in View

ROANOKE RAPIDS, N. C.—Construction companies long ago decided that it's good public relations policy to cater to the sidewalk superintendent streak in everyone. But Stone & Webster Engineering Corp. outdid itself at its $34-million power station project being built for Virginia Electric & Power Co. (pictures).

Stone & Webster didn't stop at providing onlookers with a safe place to stand, out of the way. It built a rustic observation tower, like the broad porch of an oldtime resort hotel, on the hillside overlooking the powerhouse site and the 1½-mi. tailrace that's being cut from solid granite. Hundreds of visitors use the vantage point each week. A nearby parking area of crushed stone accommodates 200 cars at a time.

• **Year More**—It will take another year to complete the 3,000-ft. dam (lower picture) and the 100,000-kw. powerhouse. Three shifts totaling 1,800 men are now working on the project.

The site was the center of a fight all

WESTVACO SELECTS SELAS

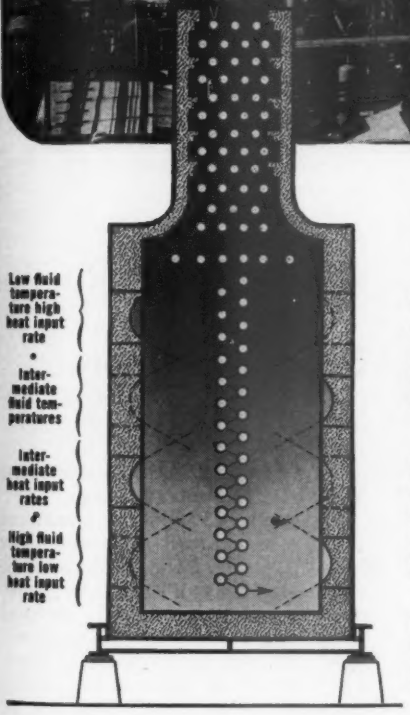
Low fluid temperature high heat input rate
Intermediate fluid temperatures
Intermediate heat input rates
High fluid temperature low heat input rate

Photo Courtesy Westvaco Chlor-Alkali Div., Food Machinery and Chemical Corp.

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Selas Gradiation Heaters, with radiant heat Zone Control, play an important part in the continuous production of carbon bisulfide at Westvaco's new South Charleston, West Virginia plant. Precise processing control throughout, assures product uniformity for rayon, cellophane, cellulose sponges, rubber, fumigants, industrial solvents and other uses.

This precise control of the heating process—involving highly corrosive materials—is achieved by manifolding the fuel in such a manner that the firing rate can be adjusted to the necessary level to maintain a predetermined tube wall temperature. Tube life is prolonged. Flexibility is achieved in determining and meeting shape of heating curve. Multiple coils can be installed in a single radiant chamber with independent temperature control.

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the way to the U. S. Supreme Court between public and private power interests. After getting a favorable ruling, VEPCO had to acquire and clear 4,000 acres of land that will be flooded. When the dam is completed, a lake nine mi. long and up to a mile wide will be formed.

TV Arabs

MILWAUKEE—Heavy rains from the backlash of hurricanes held up construction of a new VHF-TV station scheduled to open Oct. 27. "The show must go on," station WTVW officials said, and they combed the area for suitable cover. They finally found a circus tent (picture, above).

The tent was hoisted over the 3,500-foot studio site, so workmen could continue high-speed construction. If work is not completed by the October opening date, actors, announcers, musicians, and technicians will "just have to get into a carnival mood," officials said.

Wind Wagons

PHILADELPHIA—The strangest things follow the paths of hurricanes. This city all of a sudden was flooded with "bargain" automobiles, and budget-conscious buyers whose own cars were storm-lashed took the hook. Under new seat covers and quickie paint jobs, buyers found soggy, salt-pitted cars that were by-products of hurricanes Carol, Edna, and Hazel.

Nearly 200 cars hit the market in one week. The Better Business Bureau looked into the deal and found that they were coming in from New England. Commissioners of motor vehicles in those states have ruled that dealers must clearly mark invoices indicating storm damage. This made cars almost impossible to sell in home areas.

Hartford BBB tipped off its Philadelphia counterpart on the hurricane-car gimmick. Nearly 90% of the owners whose cars were submerged by flood waters and sand, were paid full value by insurance companies. The owners persuaded the insurance people to sell the cars back for a few hundred dollars. "Just to have a trade-in," they said. Big buyers then purchased these cars and shipped them here. Now, the BBB is on the lookout for Chicago and North Carolina flood cars.

Growing Pains

DETROIT—Several suburbs in this area are finding that they have expanded so rapidly that they're busting their breeches. Last week, city councils of two gorged municipalities ordered painful hitches in the residential belt by stopping the issuance of all building permits.

In a move that took local builders completely by surprise, the city of St. Clair Shores ordered a halt in new home permits. St. Clair Shores has grown from 19,000 in 1950 to 40,000 today, and the council feels that it will never be able to take care of the residents. A special community welfare tax of up to $300 is being proposed to be levied on all new homes.

Roseville, another fast-growing community, went one step further. It banned all building across the board—commercial, municipal, and residential. The community will assess all new builders to ease the strain on municipal and school facilities.

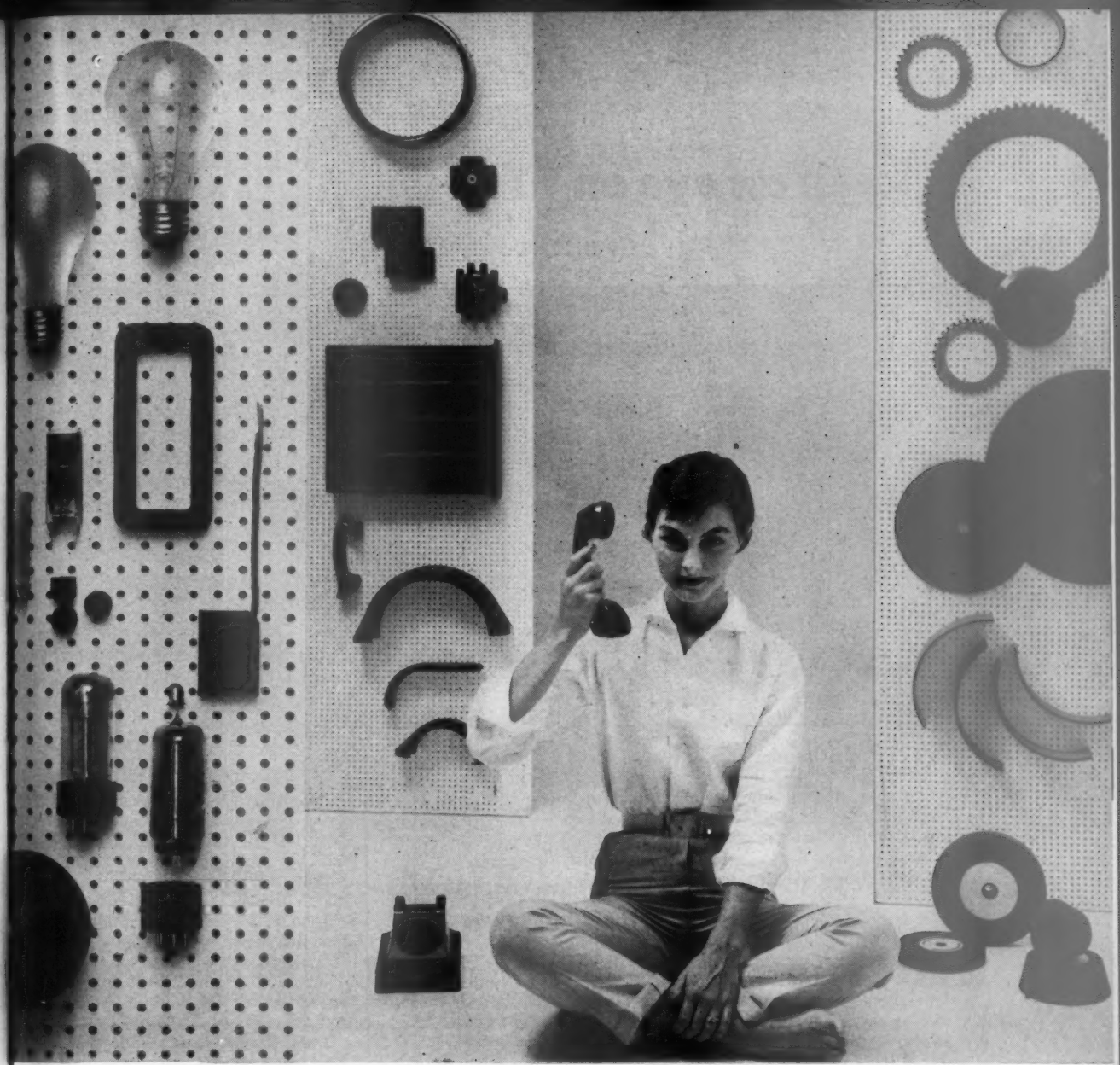
Busy Corner Footwork

CHICAGO—Carson, Pirie, Scott & Co. is one of the main attractions of what Chicagoans fondly call "the world's busiest corner" at State and Madison Streets in the Loop.

Last week, CPS officials announced that the store would move to another spot unless negotiations could be made on the lease price of the 12-story building it now occupies. Actually, the store would like to buy the building outright. To back up its threat to move, the store says it has eyes on another property, which it can lease for 25 years at $1.20 a square foot. CPS now pays about $1.66 a square foot.

The whole deal is complicated by the fact that its present building is owned by the estate of Otto Young, pioneer Chicago merchant. The trustee of the estate has no power to act until the death of Young's survivor—a 76-year-old daughter. The Federal District Court has been asked for instructions.

After all the threats died down, no-



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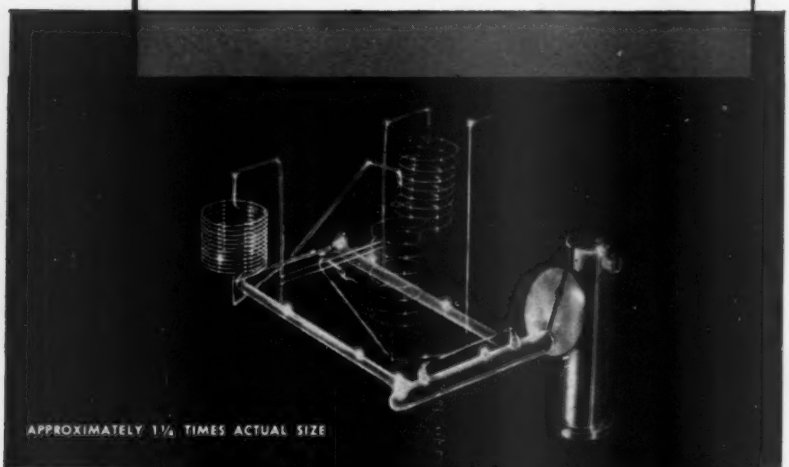

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body really expected CPS to move. Fellow merchants believe it is just a "window dressing" move to assist the store and Young's estate trustee to work out a deal that will stand up in court.

Monkey Business

INDIANAPOLIS—It looks as if Weir-Cook Municipal Airport will hit the big time as a regular international port of entry. Last week, Eli Lilly & Co., one of the producers of the Salk polio vaccine, was given Bureau of Customs approval to bring in cargoes of monkeys from India.

Granting landing rights to Lilly means that customs officials could give permission for other international flights—except regularly scheduled passenger runs. Harry D. Youse, local customs man, said that he expected the airport would receive passengers—as well as more monkeys from overseas—by January, 1956.

Last March, the airport was made an alternate port of entry for international flights unable to land at their regular fields because of bad weather. Local businessmen believe the admission of "foreign" monkeys is a major step in making the port into an international stop.

Bank Playground

ST. LOUIS—Northwestern Bank & Trust Co. has a plan that it believes is a first in the usually conservative field of high finance—an after-hour, parking-lot playground for neighborhood children.

John P. Meyer, bank president, said that the 120-ft. by 60-ft. lot was being resurfaced, and would be supplied with night lighting and sports equipment for basketball, badminton, volleyball, and other games.

Local businessmen think that the Northwestern idea might catch on in other banks around town, or even around the country. The lot will be open daily except Friday from 3 p.m. to 8 p.m.

Update

GREENSBORO, N. C. – This city, parched by a water shortage (BW –Oct.16'54,p92), last week suddenly got more water than it knew what to do with. In one day, it was drenched with a 6.24-in. rainfall from Hurricane Hazel—and the reservoir level was back to normal.

A long-range water program (started well before the shortage), which includes a $1-million dam, is expected to keep the city wet until at least 1966. After that, industry and residents will probably tap private lakes and expand the Lake Brandt reservoir.

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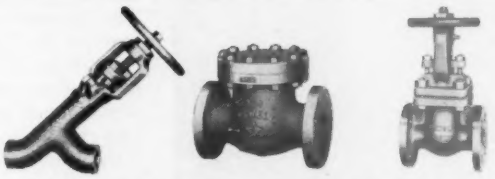
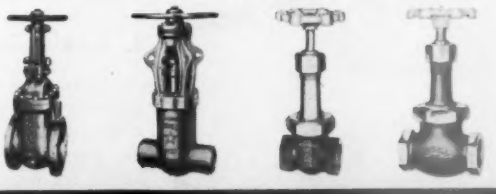


CONTROLS FOR THE LIFE LINES OF INDUSTRY



Powell Valves

108th year

Pilots John Rathje and Herbert Topp of Germany's prewar Lufthansa airline (right) are catching up on postwar air techniques at the Taloa Academy of Transocean Air Lines at Oakland, Calif. It's part of preparation for . . .

Putting Germany Back in the Air

ENGINEERS of the new Lufthansa cram for 14 hours a day in U. S. classrooms.

A ghost strolled up to the ticket counters of the world's major airlines this week and threatened to walk off with some of the customers. The ghost is the Deutsche Lufthansa, the prewar German national airline, which got permission to come back to life with the London agreement on restoring German sovereignty.

The Lufthansa ghost is giving a fright to almost all international carriers in the highly competitive airline business. The prewar Lufthansa was a striking example of German technical skill, organization and operating knowhow. It served four continents when aviation was as much an art form as a business, and did it so successfully that until 1939 many travelers considered Lufthansa the top example of airline efficiency.

I. Lively Specter

Already the new Lufthansa exists on paper if not in the air. With characteristic Teutonic thoroughness, Bonn has been laying plans for a national airline for more than a year and a half. Lufthansa veterans have been hard at work in Europe and in the U. S. catching up on skills unused since the end of the war (pictures). A staff of 300 is set up in a Cologne headquarters. An operational GHQ is being built in Hamburg, ancient home of the Hansa trading league from which the airline gets its name.

Lufthansa was awaiting only a green light from the Western Allies, which had forbidden any German air activity under the occupation statutes.

• **Equipment**—This week members of the board of directors of the new Lufthansa arrived in New York to begin a tour of inspection of the U. S. aircraft industry.

Since the Germans aren't allowed to build planes yet, they must depend on foreign aircraft to equip their new airline. They have already purchased four twin-engine Convair 340s (for German domestic and European routes) and four Lockheed Constellations (for an intercontinental route across the North Atlantic). This week's visit apparently is aimed at meeting the need for more aircraft in the near future.

But permission from the three-power control commission at Cologne is still needed to import the U. S. planes into Germany. The French may hold it up until they finally ratify the London Accord. There seems a good chance, though, that it will come sooner, perhaps next month. If so, the new Lufthansa will be in the air with a schedule in West Germany, Western Europe, and across the Atlantic early next year.

• **End of a Spree**—The appearance of Lufthansa in the German skies will end

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the spree foreign airlines have had in Germany since the end of the war.

With no German airline, two U.S. and a half dozen European lines have done a thriving domestic business between West German cities—something they cannot do elsewhere in the world, except of course in their own countries. International flights have also been able to haul passengers between European countries and Germany without competition from a German carrier.

German sources estimate that 30% of the traffic originating in Germany last year was of German nationality. On the North Atlantic, no German airline competed for the 12% of the total traffic that was of German nationality. There is increasing foreign business to and from the Ruhr and the Rhine cities on the routes to Asia and Latin America.

II. Grooming the Challenger

It is in this intercontinental race among the major world carriers that existing airlines expect eventually to have the most trouble from Lufthansa. For despite Bonn denials, what they see is a German attempt to resume Lufthansa's place as one of the five great airline networks of the world.

• **Beginnings**—Between the two World Wars Germany led the world's international civil aviation. For Germany, as for France, Britain, and the U.S., aviation practically began with World War I. German pilots matched the Lafayette Escadrille and the Royal Flying Corps, ace for ace. After the war, a flock of small German companies began air services inside Germany and throughout Europe.

At the same time Germans living in Latin America began organizing "national" companies in Colombia, Brazil, and Bolivia. It was mainly these companies, grouped together in the Kondor Syndikat, that provided the greatest opposition to Pan-American's attempt to put together an international system in Latin America. Unlike Pan-Am, KLM, and Air France, the Germans set out to build small regional companies, then tie them together.

• **Spreading Out**—In 1926, Deutsche Lufthansa was formed by the German government to take over all the various German domestic and European airline activities. It was a government-private monopoly in the cartel tradition. By 1934, it was operating a scheduled mail service across the South Atlantic from Stuttgart to Buenos Aires.

A route was extended through the Middle East to the Orient, as far as Tokyo. As the war approached in 1939, Lufthansa was making progress on a projected route across the North Atlantic.

• **Carrying On**—Four of these prewar

What goes into a Dixie Cup?

Into a Dixie Cup goes a variety of hot and cold foods and drink... Cokes, soda and malteds in the flat bottom cold drink cup shown above for the younger set – in many other sizes and types, a wide selection of packaged foods for the home. In the relatively few years since the Dixie Cup Company created the first paper cup, the Dixie Cup has become a national institution.

Today, the Dixie Cup has an every-day role in Industry, too. Blanketing the United States, five Dixie Plants turn out the many different sizes and types of Dixie Cups used by Industry for serving food and drink. Dixie Cups assure clean, safe service at water coolers, in cafeterias and restaurants, in automatic drink vending machines, for pre-packaged foods, and for a variety of other important uses.

Into the making of a Dixie Cup go science and skill born of many years' experience; the finest modern machinery; raw materials to feed these machines – carefully selected paper, ink and adhesives.

On the subject of adhesives, Dixie says, "Arabol Adhesives meet the exacting quality requirements which make Dixie Cups perfectly safe and economical for both Industrial and home use!"

The multi-billion dollar Paper Converting Industry is one of a hundred industries in which Arabol is privileged to serve the leaders. In 69 years of pioneering, more than 10,000 adhesives formulas have been developed in our five laboratories – each meeting a specific need for a special adhesive in some step of a customer's operation.

Somewhere in your business, you use adhesives for the making, labeling, packaging or shipping of your product. The cost of fine adhesives is low – so low, in fact, that you can easily afford adhesives made to your specifications for each of your requirements.

Somewhere *near* your business, one of seven Arabol plants and four warehouses stands ready to supply your regular adhesives needs – to furnish prompt and efficient help in meeting your new ones. And in the event of disaster or economic need in one area, you are served from another plant; you are assured of uniform quality and service.

We invite the opportunity to submit samples for you to test in your own plant – under your particular working conditions – for your specific requirements, whatever their nature. That is the one kind of testing that assures you of satisfactory results. Your inquiry to Department 15 will bring a prompt response.

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Lufthansa pilots who continued to stay at the controls of transports throughout the war are now in training at Transocean Air Lines' Taloa Academy in Oakland, Calif. Together with other recruits—many of them former Luftwaffe pilots—they'll form the nucleus of the new Lufthansa's air crews.

In many ways they represent what the new Lufthansa means as competition for other carriers. In their mid-40s, they've logged thousands of hours with the prewar company. After the war, they sweated it out in other occupations until Lufthansa was reformed.

Their enthusiasm to get back into commercial aviation knows no bounds. Taloa instructors say they're the best students the school has ever had. They spend 14 hours a day in classrooms, behind the stick of twin-engine training planes and in simulated trainers. In six weeks they will try to cram all the advances in techniques and aerodynamics they've missed in the 10 postwar years out of aviation.

Back in Germany, Lufthansa plans to use them as co-pilots to foreign pilots borrowed from other airlines for a few months. That's to insure utmost safety, watchword of the old Lufthansa.

• **At the Controls**—The same intensive preparation is also going on in Germany. The driving force and unquestioned boss of the operation is H. M. Bongers. In aviation since 1918, Bongers joined the old Lufthansa in 1926.

• **Strong Backing**—The new Lufthansa is a registered stock company capitalized at nearly $12-million. The Federal Republic and the State of North Rhine-Westphalia hold 85% of the stock, the German Railways 5%, and the remaining 10% is in private hands. But they are no ordinary hands, as you can see from a glance at the names of the companies involved: Daimler-Benz, Farbenfabriken Bayer, Robert Bosch, Telefunken, Siemens & Halske, and AEG (the big electrical equipment combine).

III. How Big a Threat?

The financial power concentrated in the new company has been reflected in its dealings with other international carriers. Lufthansa has firmly but politely turned down most of the aid offered by other airlines—especially when the strings attached included a stock interest. British European Airways offered to "loan" turboprop Viscounts in return for Lufthansa stock. But BEA has so far got a polite "no." Reported offers from two U.S. companies have also been parried.

• **Join 'Em**—The helping hand offered by Lufthansa's competitors for its entry into the market is not just stewardess etiquette. They have known the new Lufthansa was inevitable. So they have taken the attitude: "If you can't lick 'em, join 'em."

This reasoning is based partly on Germany's particular air traffic situation. Some 6% of Europe's air travel is now flowing in or out of Berlin. Under the terms of the occupation only an airline of one of the occupying powers can fly into Berlin's Tempelhof field. So it seems likely that Pan-American, BEA, and Air France will be the only lines from West Germany into the old German capital for some time. Any interline agreement with the new German airline covering this haul would pay off. International tickets sold in Germany by Lufthansa for points it can't serve outside the continent of Europe will also be an interline dividend worth working for.

• **Bigger Cake**—This Alphonse-Gaston politeness on the part of the international airlines is being repeated on Bonn's end as well. German officials have gone out of their way to "prove" to other carriers they won't upset things. They say because Lufthansa is late to the game, it can't hope to be more than a "baby airline." The four Constellations Lufthansa has ordered—and hopes to put into North Atlantic service early next year—can't hope to get more than 3.5% of the business, Director Bongers says. That's small indeed compared to Pan-Am's 27%. Bongers claims it is less than the yearly increase in passengers, and so won't hurt anyone.

The argument is that Germany deserves her share of the cake, but the cake is getting bigger. Bongers estimates that foreign airlines all told grossed $48-million in Germany in 1953, of which only a third stayed in the country; he hints that Germany should have her own slice. At the same time, German travel experts say the country is travel-minded, that by 1960 its tourists for export will double.

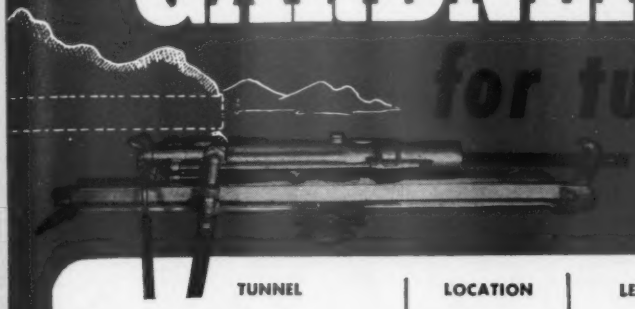
• **The Fear Remains**—U.S. airline officials are willing to go along with part of this argument. They figure that once the mark becomes convertible into dollars without restrictions, hundreds of thousands of Germans will fly to visit relatives in the U.S. and Canada.

But what the international carriers fear most is Lufthansa expansion into a world network. The company hopes to begin Latin American service next year, a service to the Far East the following year. Lufthansa already has plans for an additional $12-million investment. That kind of financing, plus German skills, add up to a real threat of competition.

If Lufthansa comes back in a big way, it will increase pressure in the U.S. for a pool of American civil air resources in the foreign market in a single "chosen instrument" (BW—Sep. 4'54,p33).

604,057 feet prove . . .

it's GARDNER-DENVER for tunnel drilling!



Here's the tunnel record . . .
that speaks for itself . . .

TUNNEL	LOCATION	LENGTH	BORE	DRILL EQUIPMENT GARDNER-DENVER
Bear River, Mokelumne Project	California	13,520 ft.	8½'x11'	Full
Bingham Tunnel #5840	Utah	7,000 ft.	21'x26'	Full
Carter Lake Pressure	Colorado	5,800 ft.	10'	Full
Cherry Valley Dam Diversion	California	1,280 ft.	18½'	Full
Downsville Dam Diversion Tunnel	New York	1,900 ft.	45'	Full
Duchesne	Utah	31,665 ft.	11'	Full
East Delaware Aqueduct	New York	132,860 ft.	11'4"	Full
Frenchman Hills	Washington	9,200 ft.	16'	Full
Grand Valley Emergency	Colorado	2,240 ft.	13'	Full
P. G. & E. Pitt #4 Tunnel	California	21,500 ft.	23'	Full
Paraiba-Pirai Diversion	Brazil	12,624 ft.	25'x23'	Full
Rattlesnake	Colorado	8,760 ft.	11½'	Full
Rideau River	Ontario	9,000 ft.	7'	Full
Ross Dam Diversion	Washington	2,000 ft.	19½' and 27½'	Full
Sa Carvalho	Brazil	13,400 ft.	17'x17'	Full
Tennessee Creek	North Carolina	4,800 ft.	13'x14'	Full
U of Washington Tunnel	Washington	5,280 ft.	6'x8'	Full
MDC North Relief Sewage	Massachusetts	3¾ miles	12'	Partial
Piney Branch Trunk Sewer	Washington, D. C.	1,875 ft.	15'	Full
Meilleur Atlantique	Quebec	1,575 ft. 9,000 ft.	11' 10', 9' & 7'	Full Partial
Sir Adam Beck Hydro-Electric Project	Ontario	Twin 5½ mile	52'	Partial
Hamilton Sewer Project	Ontario	3,300 ft. 2,780 ft.	12½'x12½' 8'x8½'	Full Partial
Cincinnati Water Works	Ohio	14,000 ft.	11'	Full
Santa Cecilia-Vigario	Brazil	12,624 ft.	25'x23'	Partial
Calumet Contract #18C	Illinois	2,000 ft.	7'1"x6'4¼"	Partial
P. G. & E. Hendricks Tunnel	California	4,600 ft.	6'x7½'	Partial
South Laguna Beach Sanitary Sewer	California	12,000 ft.	4'x6'	Full
Spokane Sewer Tunnel (Section B-2)	Washington	6,250 ft.	6½'x7½'	Full
Cobbs Creek Intercepting Sewer	Pennsylvania	6,000 ft.	10'6"	Partial
Metlakatla Indian Community Purple Lake Project	Alaska	2,600 ft.	7'x7'	Full
Boqueron Tunnel #1	Venezuela	5,900 ft.	28.7'x19.7'	Full
Boqueron Tunnel #2	Venezuela	1,560 ft.	28.7'x19.7'	Full
Belviso Creek Project	Italy	16,150 ft.	10'2"	Full
Surco Tunnel Project	Peru	20 km (12.5 miles)	9¼'x8¼'	Partial
Southwest Main Gravity Intercepting Sewer Tunnel	Pennsylvania	18,000 ft.	17' to 8'6"	Full
Bacon Tunnel	Washington	10,000 ft.	21' horse shoe	Full
Detroit Dam Diversion Tunnel	Oregon	230 ft.	31' horse shoe	Full
Detroit Dam	Oregon	1,200 ft.	28'	Full
Lucky Peak Dam	Idaho	1,200 ft.	23'	Full
Eugeria Hidroelectrica Andina S.A.	Peru	7.8 miles	9'x12'	Partial
Laranjeiras	Brazil	3,320 ft.	20'x60'	Full

It adds up to 604,057 feet of tunnel—and remember, this list represents ONLY those tunnels which were drilled during the last five years!

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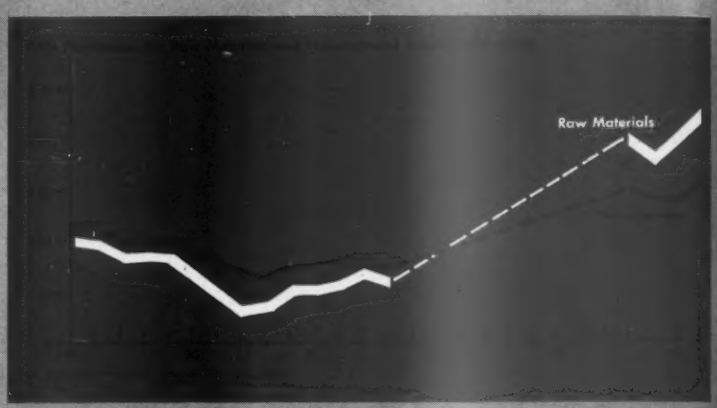
A Fresh Look at th

Price:

Of course, depression has hurt producers of primary products. Still, they've done better pricewise since the war than producers of manufactured goods.



More Output Would Help

It's the cardinal belief of some economists and many leaders in Latin America and Asia that underdeveloped countries condemn themselves to the chains of colonialism if they concentrate on boosting their exports of raw materials to the rich manufacturing nations. Such concentration, it is argued, makes them dependent for survival on the vagaries of advanced industrial economies.

This dogma has many believers, but it has also found a very vocal heretic: Stacy May, economic adviser to the Rockefeller's International Basic Economy Corp. May claims that increasing raw materials for export can be a boost, not a drag, in the struggle of the underdeveloped people for higher living standards.

To support his contention, May makes three principal assertions:

- Those nations described as "underdeveloped producers of raw materials" actually produce less than a third of the free world supply of industrial raw materials.
- Turning out these primary products for export is constructive development, rather than exploitation.
- The producers of raw materials are doing better in terms of prices than the producers of manufactured goods.
- **Folklore**—May says that many of today's conventional ideas about materials and economic development are more akin to folklore, hearsay evidence, and assumptions than they are to fact. At a recent world population conference in Rome, he listed what he called the chief points of folklore, and proceeded to assail them.

Against the argument that the underdeveloped areas are the world's chief producers of industrial raw materials, he cited the year 1950 as roughly representative. In that year, the industrial areas—North America, Western Europe, Japan, Australia—produced more than two-thirds of the free world supply of industrial raw materials. For minerals and forest products the figure was 75%.

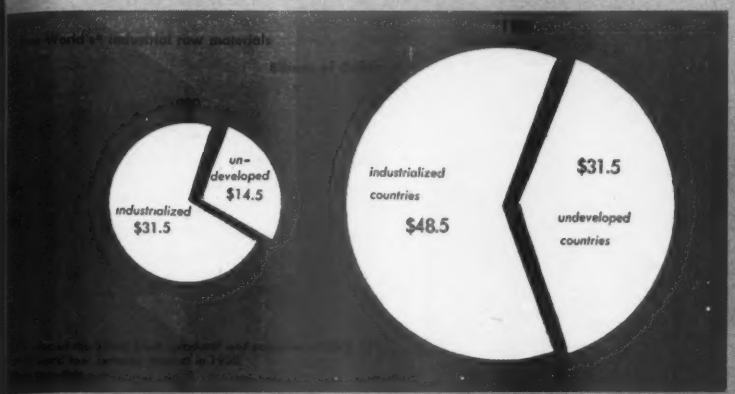
May took an equally dim view of the claim that underdeveloped areas lose out when they exchange primary products for manufactured goods, because their wares face erratic prices and uncertain demand, while the manufacturers enjoy stable demand and prices. May admitted that for a short time during the Depression raw materials prices fell further and faster than those of manufacturers. And he conceded that the fluctuations of raw materials prices have been more extreme than the fluctuations of finished goods (chart, above left).

The catch to this is, according to May, that since the Depression these

ree World's Raw Materials

Production Now:
Curiously, it's the industrialized nations — the U. S., Japan, Western Europe — that produce two-thirds of the world's industrial raw materials.

Production 1980:
Today's underdeveloped nations have a shining opportunity to supply much more of the free world's needs of primary products in 25 years—at good prices.



Underdeveloped Areas

fluctuations have resolved themselves into a steady upward trend.

May uses this to refute the frequent argument that the raw materials producers need some sort of world price support scheme, tying their prices to those of manufacturers. Actually, he says, the raw materials producers are the ones who have profited from the free market for the past 15 years. Still, May admits that the evidence on his side is fragmentary and open to dissent. He urges further study.

Another target for May is the standard contention that underdeveloped areas should devote all the capital they possess or can attract to building up home industry, rather than increasing production of raw materials. May concedes that predicting future demands for raw materials is a foggy business. But he is convinced that the needs of the industrial nations are going to increase, and that much of the added supply will have to come from the presently underdeveloped areas. Costs of raw materials production in the industrial nations are already rising, and in some cases the reserves are running low.

May's best guess is that by 1980 the underdeveloped countries could double their raw materials production; and their sales to the manufacturing nations (chart, above right). The necessary capital, he thinks, is well within their investment possibilities.

He is careful not to throw cold water on underdeveloped peoples' dreams of industry. He agrees that they should build up domestic manufacturing, but emphasizes that increasing sales of raw materials abroad can provide capital.

• **New Goal**—May advises underdeveloped nations to take "vigorous advantage of the opportunities" offered by a favorable demand and price outlook. They should use the manufacturing countries' increasing need of supplies "as a lever to pry" investment funds to finance expansion of their own production. Then they can use foreign exchange earnings to buy machinery for their own industry.

In conclusion, May says that by adopting a "wise strategy," today's underdeveloped countries, can make the designation inapplicable—and move steadily toward well-rounded industrial economies.

The problem of raw materials and economic development isn't merely an exercise for the theorists—it concerns the diplomats and businessmen as well. The entire issue will be hotly debated next month, when the 20 Latin American republics meet with the U. S. in a hemisphere economic conference in Rio de Janeiro.

a **CMP** *cost cutting report* **ON THIS SPRING STEEL PART**

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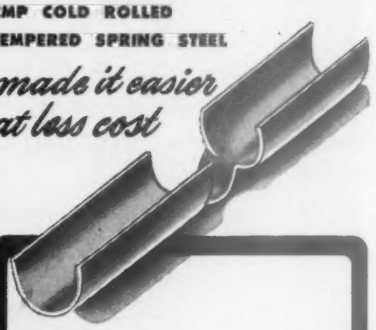

BEFORE

This manufacturer of spring steel parts purchased annealed spring steel and processed it for desired temper preceding fabrication. Frequently problems of non-uniformity slowed down production. Often-times parts did not meet specifications--tolerances were too variable--fatigue tests would not meet requirements. It all added up to many costly rejects.

AFTER

These problems were given to a CMP representative for study and, after several discussions with CMP technical representatives, a new manufacturing procedure was established. Specific specifications were developed by CMP for each spring steel application and, after approval by the Customer, CMP then produced and processed tempered spring steel to each such specific specification. The manufacturer's previous problems of fabrication and tempering-in-process were eliminated and the manufacturer showed an improved cost on each such spring steel job, proving once again that it is worthwhile to utilize the CMP technical spring steel experience which is available to you at any time.

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You can get people to speak favorably by giving them facts, *all* the facts. Tell them the reasons why your brand will serve them well. Explain and illustrate in satisfying detail the benefits you offer. Cover every major *and minor* advantage. And do it colorfully, attractively, IN PRINT for accuracy, permanence and maximum selling impact.

The well-printed booklets, brochures, broadsides, folders, reports and catalogs you circulate can act as round-the-clock salesmen for your product — and provide your prospects and customers with the finest kind of source material for friendly conversation.

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Never lose sight of the happy fact that a good printer can save you time, money and effort in the preparation of top-quality printed pieces. Invite him to sit in at your *very first* planning session. When he is called in early, a good printer can apply his specialized skills to your job at every step of the creative program. Net result: more effective selling literature for your business.

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BUSINESS ABROAD BRIEFS

Kaiser again: Colombia's Pres. Rojas Pinilla has been closeted in Bogota during the past few days with Henry J. Kaiser, discussing Kaiser's proposal for a jeep plant there. The talks follow closely on Kaiser's coup in Argentina, where he plans to build an auto plant in a deal with the Peron government (BW—Oct.9'54,p162). Kaiser could use steel from Colombia's new $100-million Paz de Rio steel works, formally opened last week.

•

Union Oil Co. of California is drilling its first well in Costa Rica, after two-and-a-half years of exploration. If successful, the well will be Central America's first strike.

•

Europe's largest ore concentrate plant has been opened in northern Sweden by Boliden Mining Co. The $5-million plant is part of a five-year expansion program aimed at a total mining and refining capacity of 1.6-million tons a year—mostly iron.

•

Eveready flashlight batteries will be produced in a $750,000 plant that's being built in Manila. The plant is a project of National Carbon, a subsidiary of Union Carbide & Carbon.

•

France's lagging exports are improving. In September, they were up 10% over the same month last year. Shipments of radio equipment have increased 50%.

•

Australian tariff policy is upsetting the British. The Aussies are supporting Japan's admission to the General Agreement on Trade and Tariffs (GATT) on terms London doesn't like. In exchange, Canberra expects favors from the U.S., Japan's chief sponsor.

•

Diamond smugglers are making off with millions of dollars' worth of gems, according to the DeBeers syndicate. The diamonds are moving out of the Congo and Portuguese East Africa, through South Africa, to markets in Europe and North America. DeBeers has set up an intelligence network, headquartered at Johannesburg, to combat the smuggling trade.

•

Krupp of West Germany may help develop sulfur deposits in Venezuela. This week Venezuelan Sulphur Corp., a U.S.-financed outfit with promising concessions in eastern Venezuela (BW—Oct.16'54,p164), said it was considering a Krupp process to refine the surface ore. The Germans are eager to be a partner in the project, which aims to supply European and Latin American markets within the next year.

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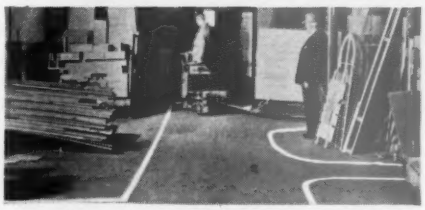
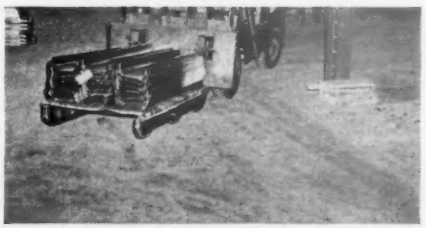


Resilient Mulsomastic floor has been in service 23 years at a Dubuque, Iowa, Sash and Door Mill.



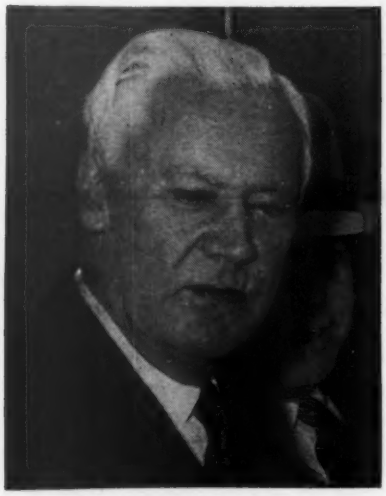
Durable Mulsomastic solves flooring problems in this Indiana steel products plant.

Long-lived Mulsomastic flooring withstands heavy trucking loads, heavier standing loads in Eastern paper mill.

A Bull in West Germany

Industrialist buys a steel mill—and seeks routes for his monorail . . . More Canadian aluminum for the U.S. . . . Goodrich looks to Africa . . . Brazil curbs credit.

Axel Wenner-Gren, tycoon extraordinary, is expanding activities in West Germany. The Swedish financier-industrialist recently bought control of an important Ruhr steel producer. On top of that, he is scouting Germany for the first route for his overhead monorail rapid transport system.



AXEL WENNER-GREN

Wenner-Gren believes in the future of the Ruhr—and the likelihood of big Ruhr profits. He has set up a new company, Wegal Property Administration Co., which has just purchased 42% of the shares of Bochumer Verein A. G. With a capacity of 900,000 tons yearly, Bochumer is one of the decartelized survivors of the monster Vereinigte Stahlwerke steel combine. The Wenner-Gren purchase, along with German steel-mill investments of two Dutch corporations, now puts 25% of Ruhr capacity in the control of outsiders.

• **Historical Footnote**—One of Wenner-Gren's dreams is to go down in history as the creator of a brand new transport system. Two years ago, his first experimental monorail train ran a test course in Cologne. Since then, two Wenner-Gren companies—Alweg A. G. and Alweg Research Co.—have concentrated on further development of the train, and on city and suburban traffic research.

Alweg doesn't plan to build or operate future monorail systems. Instead, it will grant licenses to construction companies and to public or private carriers. Fees will be low. In fact, Alweg may waive them and help with financing to get the ball rolling. However, Wenner-Gren doesn't regard his monorail scheme as a philanthropy. He means to break even—or better—on any application of the system.

• **Plans Brewing**—Wenner-Gren wants the monorail to prove itself in Germany before he starts looking abroad. He's been talking with the Krupp interests, and it may be that a plan is cooking to use the monorail to relieve the almost incredible transport congestion in the Ruhr. When—and if—there is a successful German monorail, Alweg will look to other countries. City fathers and promoters in Chile, Argentina, South Africa, even Los Angeles (BW—May17'53,p134), have looked into the Wenner-Gren monorail from time to time.

●

Ingots from Canada

Aluminium Ltd.'s 1951-1954 expansion program, which cost upwards of $465-million, is almost complete. But "complete" is a relative term for Aluminium. Last week Nathanael V. Davis, president of the Canadian-based, world-wide aluminum combine, announced plans for an additional 60,000 tons of capacity at Aluminum Co. of Canada's new Kitimat smelter in British Columbia.

The huge $275-million smelter-hydropower installation, four years in the building, produced its first ingot in August, made its first U.S. shipment Sept. 30. Present capacity is 90,500 tons, but the hydro facilities were built with 300,000 tons ultimate capacity in mind. The new expansion, calling for a fourth 140,000-hp. generator and two more potlines, will provide 151,500 tons by 1956.

• **Bulls**—It's another example of the chronic bullishness of the people at Aluminium and Alcan—which accounts for 75% of the group's world assets (BW—Jul.26'52,p82). They're banking on soaring demand over the next two decades. Today, they claim, demand for Canadian ingot exceeds supply; U.S. buying continues strong, and British purchases are increasing. Aluminium means to maintain—or increase—its 25% share of the free world's capacity, perhaps even surpass that of Aluminum Co. of America.

The U.S. market is first in the company's future plans. Speaking in Boston this week, Nathanael Davis returned to a favorite theme: It's in the "best interests" of the U.S., and its many aluminum fabricators, to rely on Canada for part of their requirements. Use of aluminum will expand only if its price stays favorable in relation to other metals; to maintain that relationship, aluminum production must move to lowest-cost sources of electric power. That, in Davis' book, means "wilderness areas"—and Canada.

●

Goodrich in Africa

B. F. Goodrich Co. is going to grow its own rubber. This week, the Akron manufacturer announced an 80-year concession to plant and produce rubber in the West African Republic of Liberia.

Goodrich is the fourth major U.S. rubber company to enter the plantation business, the second to choose Liberia. Firestone has been the largest foreign investor in Liberia since the 1920s, with a 99-year lease on 1-million acres (90,000 of them are planted now). Goodyear Tire & Rubber Co. and U.S. Rubber produce part of their supplies on Far East plantations. Last month, Goodyear revealed a blueprint for its first new plantation in 20 years—in Brazil near the mouth of the Amazon (BW—Oct.2'54,p156).

• **The Pitch**—Two considerations seem to lie behind this kind of expansion. For one thing, raw materials' studies indicate soaring demand for natural rubber through the next decade. There's no doubt that rubber people are hedging their bets on the future of free world production in Southeast Asia, now under the guns of Communism.

For little Liberia, the Goodrich venture is just what the doctor ordered. Liberian Pres. William V. S. Tubman arrived in New York last week for a three-weeks' U.S. visit—to sell more Americans on investment in his country.

●

Crackdown in Brazil

Finance Minister Eugenio Gudin is clamping his anti-inflation program tighter. This week, Brazilian bankers and importers felt one more turn of the screw.

On pain of loss of their charters, banks are restricted to paying no more than 3% interest on checking accounts, 6% on one-year deposits. That's a comedown from some of the rates, fabulous to U.S. eyes, of recent months. Moreover, the government has jacked up rediscount rates—and promises further steps soon.

To save dollars, Gudin has decreed a 27% reduction, to $10-million, in the amount of dollars that can be auctioned off to traders in November—slim pickings for dollar importers.

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INTERNATIONAL OUTLOOK

In Paris this week Western diplomats were back at the job they started so successfully in London—the job of fitting a sovereign West Germany into the Atlantic Alliance.

At midweek it looks as if the Paris sessions will end with a ringing declaration of Franco-German reconciliation. This would include a Saar agreement—something the French insist on now.

At the same time there is growing evidence that Premier Mendes-France will get Parliamentary approval later for any agreements reached.

Don't assume, though, that the Saar question really is being settled at Paris. Or that the French offer to include Germany in the development of North Africa will do much to produce Franco-German harmony.

The Saar will continue to be a sore spot between the two countries. The French still aim to use their economic control over the area to detach it permanently from Germany. Bonn counts on the German nationality of the Saarlanders to finally settle the issue in its favor.

Joint development in French North Africa might pay off economically someday. But you can't be sure that the French really mean to follow through on this offer.

—•—

The heat has gone out of the Formosa issue, at least for a while.

After the dangerous flurry over Quemoy, Washington has decided on a strictly defensive policy in Formosa.

At the same time Moscow seems to be pressing Peking to forego military action, try to pry Formosa loose by diplomatic pressure.

Despite official denials in Washington, there's no doubt that Chiang Kai-shek has been "re-leashed."

During a trip to Formosa last week Asst. Secy. of State Walter Robertson persuaded Chiang to suspend air action against the Chinese mainland.

It wasn't just fear of a military explosion that led to Washington's decision. There was allied pressure, too. The British urged that curbing Chiang was essential to counter Peking's efforts to woo the neutral Asian countries.

Moscow's attitude toward Formosa isn't so clear by a long shot.

But it looks as if the Malenkov regime has discouraged Peking from any military adventures that might lead to a new war in Asia.

If that's the case, you can look for the Russians to maneuver for United Nations intervention to decide Formosa's future.

—•—

Western capitals have been trying recently to figure what's behind Tito's moves to get closer to Moscow (BW—Sep.25'54,p164).

Now it's clear that the Yugoslav dictator is steering his country toward a neutral position between East and West.

What Tito wants, apparently, is to have his bread buttered on both sides. He wants to be recognized by the Communist nations as an important Communist leader and, at the same time, to get economic aid and military protection from the West.

Moscow is giving Tito plenty of encouragement to break his Western ties. In the past few months Communist propaganda attacks on Tito have ceased. Satellite military pressure on his borders has been called off and trade deals are in the making.

—•—

Latin America's hopes for a bold new U. S. economic program for the hemisphere will go a-glimmering at Rio de Janeiro next month.

Washington parried Latin America demands at Caracas last spring by agreeing to hold a Rio economic meeting. Some hoped that we'd come to Rio with a satchel of new ideas for hemisphere economic cooperation.

It's clear now that Washington will take the same conservative stand it took at Caracas. Our delegates will:

- Urge private investment as the main source of development capital, lecture Latin American governments on the importance of improving the investment climate in their countries.
- Cite the World Bank as the second, and Export-Import Bank as the third, main avenues for obtaining capital.
- Continue grant-aid, perhaps expand it a bit—but only for technical assistance projects.
- Stand on the Administration promise to fight for liberalized U. S. trade and tariff policy.

Washington takes a dim view of proposals expected to be advanced by the 20 republics at Rio. They include (1) Marshall Plan-style grant-aid; (2) a U. S.-sponsored hemisphere development finance corporation; and (3) hemisphere commodity price stabilization schemes (page 146).

There's one new wrinkle in our policy that should please the Rio delegates. They'll be told that Ex-Im Bank will O.K. applications for all loans—provided they are bankable, that they increase the borrower's dollar-earning capacity, that they can't be handled privately or by the World Bank.

We'll stress that Ex-Im's lending capacity is now virtually unlimited. Congress raised the statutory limit by $500-million, and Ex-Im's plan to farm out loans to private banks under guarantees raises the ceiling indefinitely (BW—Oct.9'54,p160).

—•—

Northern Rhodesia's Copperbelt, ranking with Chile as the West's second largest producer of the red metal, faces the crisis of its life.

African unions insist their members be allowed to move up into better jobs. The two copper mining combines (one of them U. S.-controlled) agree. But the European (white) employees, among the most highly paid workers in the world—have blocked lowering the color bar (BW—Jan.23'54, p116).

Company-union negotiations failed this summer. A government board took on the problem. This week it reported: Africans should be upgraded.

At midweek you couldn't say for sure what the parties will do. They'll probably move slowly. But the issue must be joined sometime, and many observers fear a severe strike—with better racial overtones.

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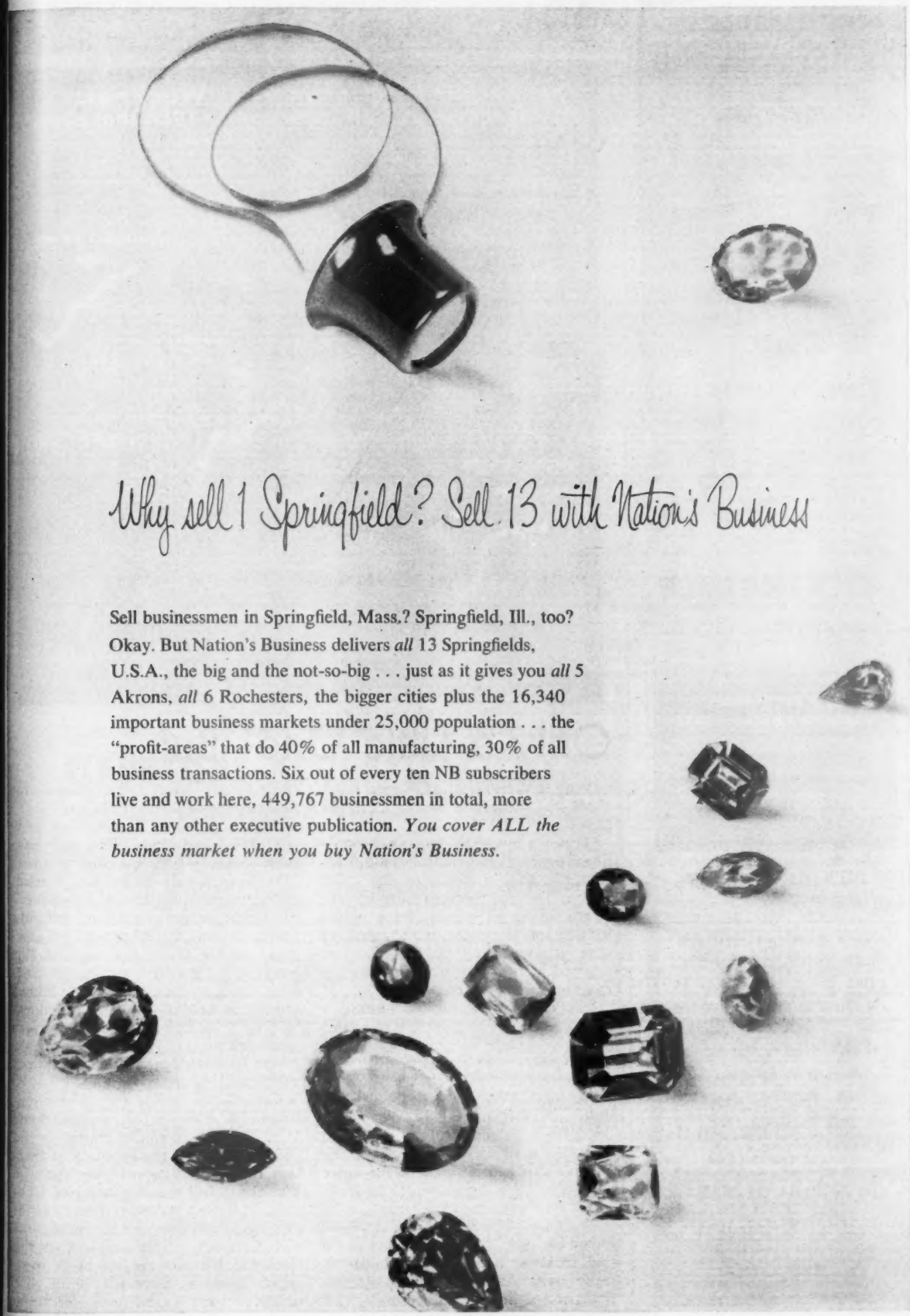

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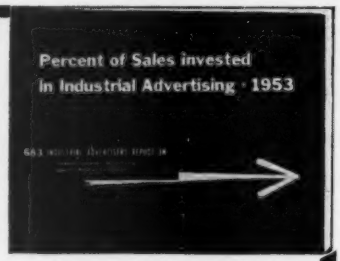

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THE MARKETS

Only a Little One—But

Why is Wall Street so worried today about the near-term future of stock prices?

That's a question most nonprofessional investors and traders would probably ask after glancing at the chart above. The chart compares four turndowns in the 1954 market—the results to date of the most recent spell of price weakness, and the total damage inflicted by the three similar shake-outs that immediately preceded it.

The nonprofessionals' question is a natural one. As the chart shows, this month's decline so far has snipped fewer points off Standard & Poor's daily industrials index than any of the earlier ones. What's more, the latest dip seems even smaller when you figure its damage in terms of a percentage drop. As it stood early this week, the October dip had lowered S&P's index only some 2.7%—against 3.2% to 4.6% scored by the earlier turndowns.

• **Warnings**—But all this is only frosting on the cake. Look deeper and you'll find that the basic situation today is really quite different from the situations underlying the earlier dips. The professionals have valid reasons for being concerned.

There's no doubt that they are nervous. More and more lately, they have been sounding such warnings as these: "Purchases should be held to a minimum, confined to special situations." "It might be well to get oneself into about 50 cash." "We would be especially careful about purchases at this juncture." "Switches are being made from stocks to tax-exempts until trends can be appraised." "It all boils down to this: . . . strong reserves, cautious commitments." "There is little reason . . . to think that a rally from this level will show large gains."

• **Causes**—One reason for all this caution lies in Election Day worries. Some Wall Streeters doubt that this is the chief reason. But the approach of Election Day, with the possibility that the Democrats will regain control of Congress, is having a definite effect. Utilities, for instance (page 160), were until recently a very strong segment of the stock list, but now are one of its weak spots. Investors obviously recall that utilities were sometimes unhappy

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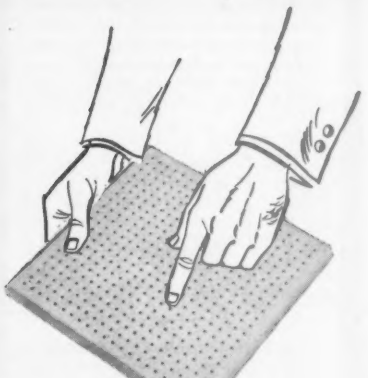

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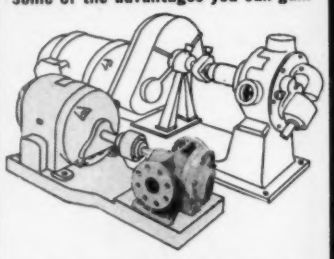

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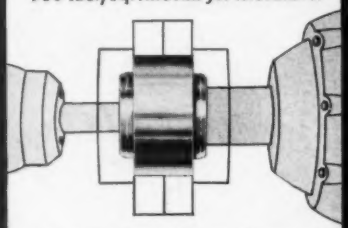

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Investors remember, too, that Republican-inspired confidence has been the main driving force behind the sharp rise of stock prices during the last 13 months. (At one point not long ago, S&P's industrials index could boast of almost a 50% rise since the climb began.) Much of this confidence, investors feel, could evaporate if the votes go Democratic next month.

• **Yields**—Another cause for concern is the belief, held by many smart analysts, that stock prices in general have finally outpaced earnings and dividends. Since September, 1953, these analysts point out, the yield on S&P's industrials index has dropped by almost one-third—from 6.29% to 4.33%. And lately, yields on the bond market have been more or less marking time; the spread between stock and bond yields, consequently, has been narrowing.

True, special yearend dividends should soon start to appear. But many Streeters doubt that this will prove a strong bullish factor. As they see it, present prices in many cases have long since discounted the importance of these yearend extras. These Streeters feel there's a good chance that such declarations will touch off profittaking, rather than price rises.

• **More Fuel**—There are many men on Wall Street who doubt that a Democratic victory next month would mean a long-term slide for the stock market. Such a victory would probably indicate that the public wants more government spending, higher farm prices, bigger budgets with more deficit financing, and other inflationary measures. The Administration might follow along, to insure reelection in 1956. The result could eventually insure high stock prices over the long term.

But the initial impact of a Democratic victory could well be adverse. Any such sharp turn of events would necessitate some broad readjustments in investment thinking and security portfolios.

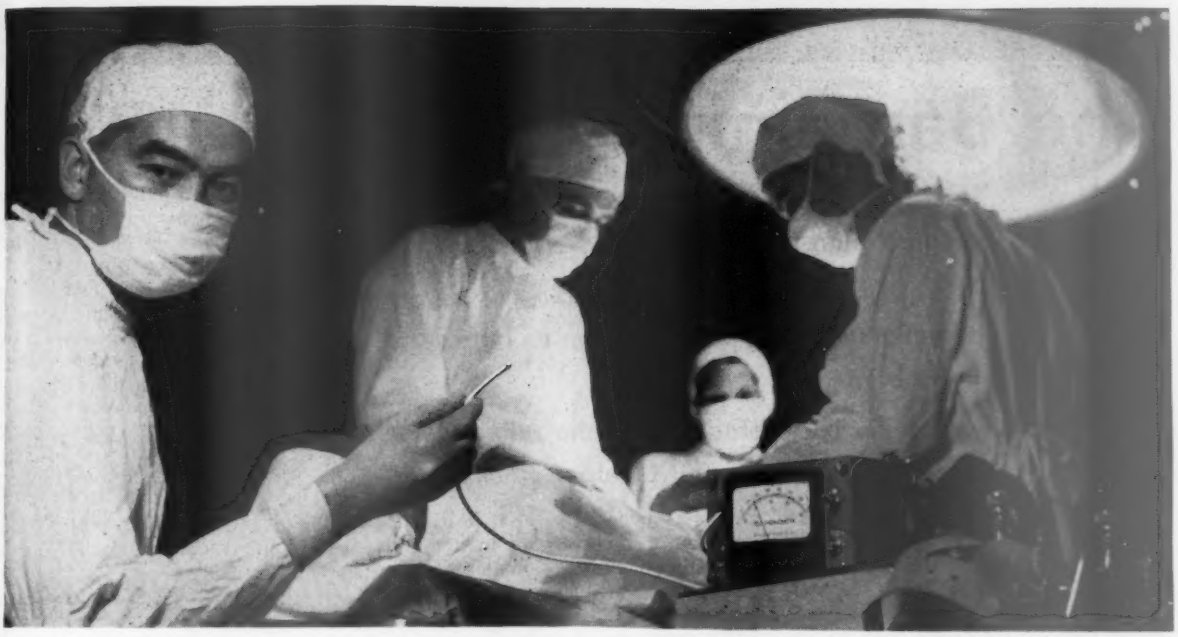
Election Day and the Utility Shares

Utility shares have been giving ground on the Big Board lately (compilation below), but Wall Streeters say the decline doesn't necessarily reflect any change in the industry's outlook. Power sales and earnings prospects continue good.

The weakness, market analysts hold, is due primarily to fears that election of a Democratic Congress next month could mean (1) a drive for rigid regulation of utilities, particularly holding companies, and (2) planning of more public power projects along TVA lines.

As a group, utilities started to turn downward last month while the industrials and rails were still advancing. They've since given up all of their autumn rally gains and are now back at midsummer levels.

Stock	Price Now	Sept.–Oct. Range High	Sept.–Oct. Range Low	Recent Level	Recent Level vs. Sept.–Oct. High	Recent Level vs. Aug. 31
American Gas & Electric	$35.87	$37.62	$34.50	$34.50	− 8.3%	− 3.8%
American Telephone & Tel	169.87	176.12	168.50	170.50	− 3.2	+ 0.4
Boston Edison	53.00	54.00	51.62	51.50	− 4.6	− 2.8
Detroit Edison	32.25	34.12	32.62	32.75	− 4.0	+ 1.6
Central & South West Corp.	26.87	28.00	25.25	25.75	− 8.0	− 4.2
Commonwealth Edison	43.25	44.25	41.87	42.00	− 5.1	− 2.9
Consolidated Gas (Balt.)	30.00	31.50	29.75	30.50	− 3.2	+ 1.7
Dayton Power & Light	43.25	44.50	42.25	43.50	− 2.2	+ 0.6
Duquesne Light	33.87	35.25	33.00	33.12	− 6.0	− 2.2
Florida Power & Light	48.50	49.37	45.50	45.62	− 7.6	− 5.9
Gen'l Public Utilities	33.87	34.12	31.75	32.00	− 6.2	− 5.5
Gulf States Utilities	32.00	34.00	30.00	30.50	−10.3	− 4.7
Houston Lighting & Power	38.00	38.75	36.50	37.50	− 3.2	− 1.3
Idaho Power	51.00	54.75	50.75	51.00	− 6.9	.....
Illinois Power	46.75	49.75	46.75	46.75	− 5.1	.....
Indianapolis P. & L.	24.00	24.75	23.50	23.62	− 4.6	− 1.6
Interstate Power	13.75	13.75	12.62	12.62	− 8.2	− 8.2
Middle South Utilities	30.87	32.25	30.00	30.25	− 6.2	− 2.0
New England El System	15.50	16.25	15.25	16.00	− 1.5	+ 3.2
Niagara Mohawk Power	31.37	31.87	29.12	30.00	− 5.9	− 4.4
No. States Power (Minn.)	16.37	16.62	15.50	15.50	− 6.7	− 5.3
Ohio Edison	41.50	44.62	41.50	42.00	− 5.9	+ 1.2
Pacific Gas & Electric	44.62	45.50	41.75	42.25	− 7.1	− 5.3
Penn. Power & Light	44.12	45.00	43.25	42.25	− 3.9	− 2.0
Philadelphia Electric	37.25	38.75	37.12	37.75	− 2.6	+ 1.3
Pub. Service El. & Gas	28.25	28.75	28.00	28.12	− 2.6	− 0.5
Southern Cal. Edison	43.50	45.25	41.62	42.37	− 6.4	− 2.6
So. Carolina El. & Gas	17.00	18.50	16.50	17.12	− 7.5	+ 0.7
Texas Utilities	55.87	56.25	50.62	52.25	− 7.1	− 6.5
United Gas	31.00	32.37	31.12	32.12	− 0.8	+ 3.6
Utah Power & Light	40.00	41.25	40.25	40.25	− 2.4	+ 0.6
Washington Water Pow	33.37	35.00	30.37	30.62	−12.5	− 8.2
Wisconsin Electric Pow	30.00	32.62	30.00	30.75	− 5.7	+ 2.5
West Penn Electric	42.62	45.00	42.50	43.87	− 2.5	+ 2.9



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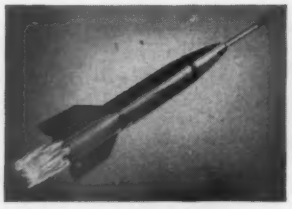

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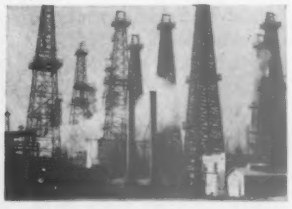


CARBOLOY CEMENTED CARBIDES, used widely in cutting tools, also wearproof vital parts. In subsurface oil-well pumps, cemented carbides cut down costly corrosion of balls and seats.

CARBOLOY

DEPARTMENT OF GENERAL ELECTRIC COMPANY

MANUFACTURERS OF CEMENTED CARBIDES, PERMANENT MAGNETS, THERMISTORS AND HEVIMET

The Bargaining Area Widens

● Labor board rules that Richfield Oil must negotiate on the stock purchase plan that it offers to employees.

● The company plans to appeal the 3-1 decision to the courts, arguing that the ruling puts the union on both sides of the bargaining table.

● Union officials find small joy in the ruling. They fear companies will clamp down on voluntary stock plans.

This week, the National Labor Relations Board made a company's employee stock plan proper meat for the collective bargaining table. By a 3 to 1 vote, the board decided that an employer who sets up a joint contributory plan for its workers to purchase stock must bargain with the union over its terms—if the union demands it.

In adding to the widening scope of negotiable matters between management and labor, the majority opinion held that stock purchase plans fall under the category of "wages"—as construed by the board and courts—along with similar benefit plans, such as pensions, health and insurance programs, merit wage increases, and profit-sharing deals. The board said that all of these come under Taft-Hartley's definition of wages or "other conditions of employment" that are proper subjects for bargaining.

• **Refusal**—In its test case, Richfield Oil Corp. of Los Angeles, put into effect a plan allowing employees to contribute voluntarily to a stock purchase fund, with the proviso that the company would make its own contribution. But when the Oil Workers International Union (CIO) demanded that Richfield negotiate on union terms, the company refused.

Richfield's argument, rejected by the NLRB majority, was that company stock—and what it does with it—is strictly a management prerogative. To allow the union to pass on stock-purchase terms, said Richfield, is to give it a seat on both sides of the negotiating table: as representative of the employees and as agent for stockholding union members.

• **Backers**—The board—often criticized by labor as biased in favor of employers—backed the position of the oil union, and ruled that Richfield was refusing to bargain. It ordered the company to discuss the stock-purchase terms with union representatives. Richfield promptly served notice that it had no intention of discussing the matter, and would appeal the issue in the courts.

Embellishing their contention that benefits from the Richfield plan fall within the bargaining area, the majority opinion noted: "We think that a commonsense nontechnical view of the plan . . . compels the conclusion that benefits accruing to employees thereunder represent a part of the compensation or remuneration received by employees for their labor, differing from their weekly wages only in form and time of payment."

The decision adds: "It is now well established that the term 'wages' comprehends all emoluments of value that may accrue to employees out of their employment relationship." Taft-Hartley states that wages and the like must be bargained on demand.

• **Not Likely**—Answering Richfield's protest that allowing unions to pass on stock-purchase terms is an unwarranted union invasion in its affairs, the three-man decision contended that invasion isn't any more likely here than in negotiations over other bargainable issues. The decision noted: "To the extent that such compulsory bargaining infringes upon the asserted right of any employer to dispose of his property and to run his business as he sees fit, that interference, we believe, is not decisively distinguishable from such intrusions in management affairs as occur whenever an employer fulfills his statutory obligation to bargain collectively. . . ."

A 1953 survey of stock-purchase plans reveals only 33 in operation (compared with nearly double that number 20 years ago), covering about 1-million employees. This shows the limited scope of such plans and the wide-open area if they become a bargaining issue.

Union officials were not happy with the decision. Said one: "This is one we could have lost." Union officials worried that the ruling will cause employers to tighten up on stock-purchase plans, which in most cases have been instituted voluntarily.

• **Wedge**—The U. S. Chamber of Commerce, which backed Richfield before the board, considers the decision a new union wedge into management's diminishing authority, and predicts that stock purchase plans will become a new labor demand following the pattern of the precedent-setting 1949 Inland Steel case, which opened pensions to negotiations.

The NLRB decision creates some big questions, without supplying an answer to them:

• Just how far can a union go in insisting that an employer share his stock with employees?

• Can the union initiate the demand?

• Could the union force a family-owned firm to incorporate so that the workers can secure stock?

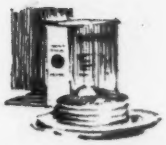
• **Problem Diet**—Certainly, these questions will be food for union and company attorneys to chew over. Richfield's willingness to make a court test of the issue could send the case through the lengthy legal mill, most likely up to the Supreme Court.

• **Lone Vote**—Albert C. Beeson, newest board member, backed Richfield's position. In his dissent, he argued that the majority position was "utterly unrealistic, and a dangerous expansion" of the area for collective bargaining. He challenged the view that stock purchase plans fall under T-H's definition of wages, because the plan in question affords no certainty whatsoever of either present or future emolument to any employee."

• **Opposition**—To Richfield's warning of invasion of management prerogatives, Beeson added: "It is difficult to conceive of any more flagrant invasion of what were heretofore considered the "legitimate rights of employers. . . . I do not believe . . . that the union which represents [the employee] can wear two hats, and still successfully bargain for the employees as employees."

But the majority decision—by Chmn. Guy Farmer, Ivar Peterson, and Philip Ray Rodgers—rejected the idea that the union could have any voice in management's affairs, even though its members were stockholders. Said the majority: Where there is a stockholders meeting, corporate election, or any other matter where stockholders are

Sodium Acid Pyrophosphates
Prepared cake mixes, doughnut flours



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Grandma was a *good* cook . . . with recipe secrets all her own. A pinch of this, a cup of that, and later, warm, sweet fragrances wafted from her kitchen. Back then, it required hours of painstaking care and years of experience to bake a cake. Today, thanks to Victor leavening phosphates, the cake that *didn't rise* is almost non-existent. Brides make perfect cakes . . . puddings in an instant . . . even *five* different kinds of pastries from *one* box of mix. All just as good as "grandma used to make" because today flour millers and food processors depend on Victor for phosphates. They know *it pays* to see Victor. Write Victor Chemical Works . . . 155 N. Wacker Drive, Chicago 6, Illinois . . . In The West . . . A. R. Maas Division, South Gate, Calif.

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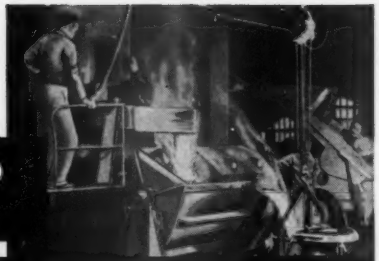
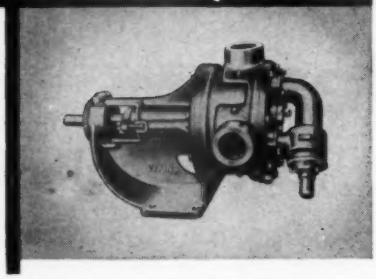


from raw material
to finished product

Viking's manufacturing plant plus both ferrous and non-ferrous foundries, featuring Sorbo-Mat castings, are owned and operated as an integrated unit. This means rotary pumps that will operate better and longer for you.



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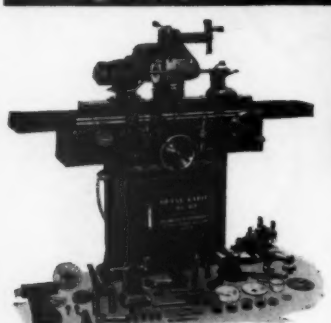

It's true, they have been hard to get because every model offers extra value.

The Model 62, for instance, features four-speed spindle drive, universal positioning of elevating hand wheel, anti-friction ways, more vertical capacity, longer swing, one-shot lubrication system.

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heard, the union has no voice as a "statutory representative."

• **Voluntary**—Richfield's plan was put into effect in July, 1953, after the company rejected the union's demand to bargain. The plan is a voluntary deal, with employee payments being made by payroll deduction.

The terms of the plan provide that an employee may contribute not less than $5 a month, or more than 5% of earnings. Richfield, in turn, makes monthly contributions into the fund of at least 50% and up to 75% of the employee's contribution. An employee can withdraw from the fund at any time. If he leaves the firm after five years of participation, he receives his own contributions, plus a percentage of the trust fund.

When Richfield first offered the plan in April, 1953, five unions accepted it without argument. But the CIO oil union turned it down, with the argument that its members had better stock-purchase deals from other companies. Richfield went ahead, anyway, and the CIO filed complaint of refusal to bargain with the NLRB.

PICKETING at Ford of Canada in Windsor, Ont., settled down in the second week of . . .

Ford's Canadian Strike

Unlike auto contracts in this country, United Auto Workers (CIO) wage agreements with Ford of Canada could be opened this year for a raise. UAW demanded an 11¢ "package" raise—4¢ in pay, about 7¢ in fringes. The company refused any increase. After delaying a strike for a week at the request of city officials, 5,700 UAW members walked out at the Windsor plant Oct. 10.

SOUND CONDITIONING

Extra fire safety afforded by this Travertone ceiling protects merchandise in the Fintex Clothing Company Store. Completely incombustible, Armstrong Travertone fully meets all fire-safety regulations.

A noise-muffling ceiling of Cushiontone Full Random over the stairway in the Robinson Furniture Store helps keep noise from traveling through the open stairwell. Cushiontone's perforations are varied in size and arranged in a non-directional pattern to eliminate the "tiled" ceiling effect.

Acoustical Ceilings Quiet

World's Largest Shopping Center

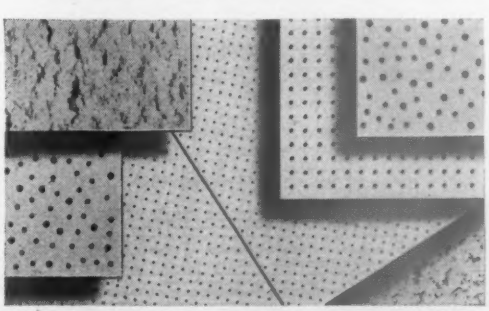
Little is left to chance in Detroit's giant new Northland Regional Shopping Center. Every comfort, convenience, and service has been designed to appeal to over a half million suburban residents that the Center serves.

Space for 7500 cars eliminates parking difficulties, and Northland's compact layout puts almost 100 stores within easy walking distance. Customers are rarely subjected to any of the annoying hubbub often found in busy stores. For throughout much of the Center, sound-absorbing ceilings of Armstrong acoustical materials have been installed to keep noise levels down at all times.

Wherever economy was the deciding factor, Armstrong Cushiontone®, in the smart, new Full Random pattern, was used. A perforated wood fiber material, Cushiontone is surprisingly low in cost. To provide the quiet, beauty, and extra fire safety required in other areas, Armstrong Travertone, a handsomely fissured mineral wool tile, was installed.

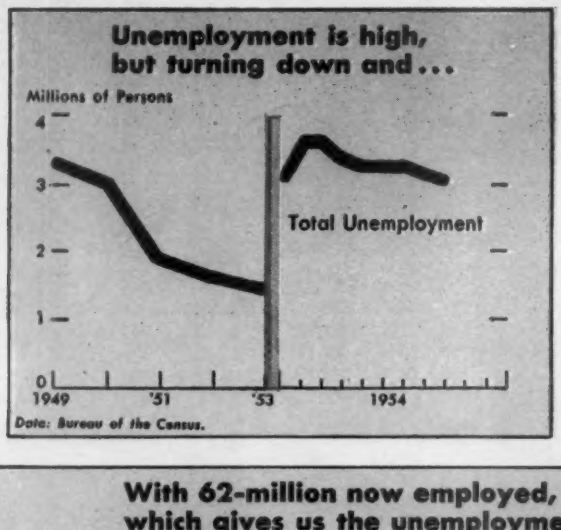
Get full details on Travertone, Cushiontone, and Armstrong's entire line of sound-conditioning materials from your Armstrong acoustical contractor. For the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4210 Indian Rd., Lancaster, Pa.

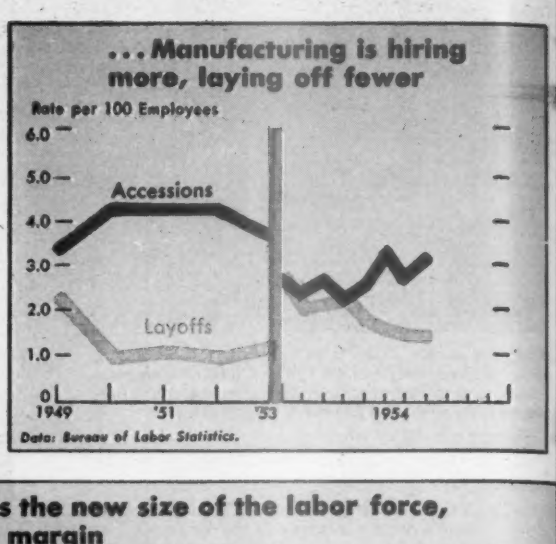
The dignified décor of the Wright-Kay Jewelry Co. is carried out by the naturally textured surface of the Travertone ceiling. Travertone's white paint finish and irregular fissures give it the distinctive appearance of travertine marble.

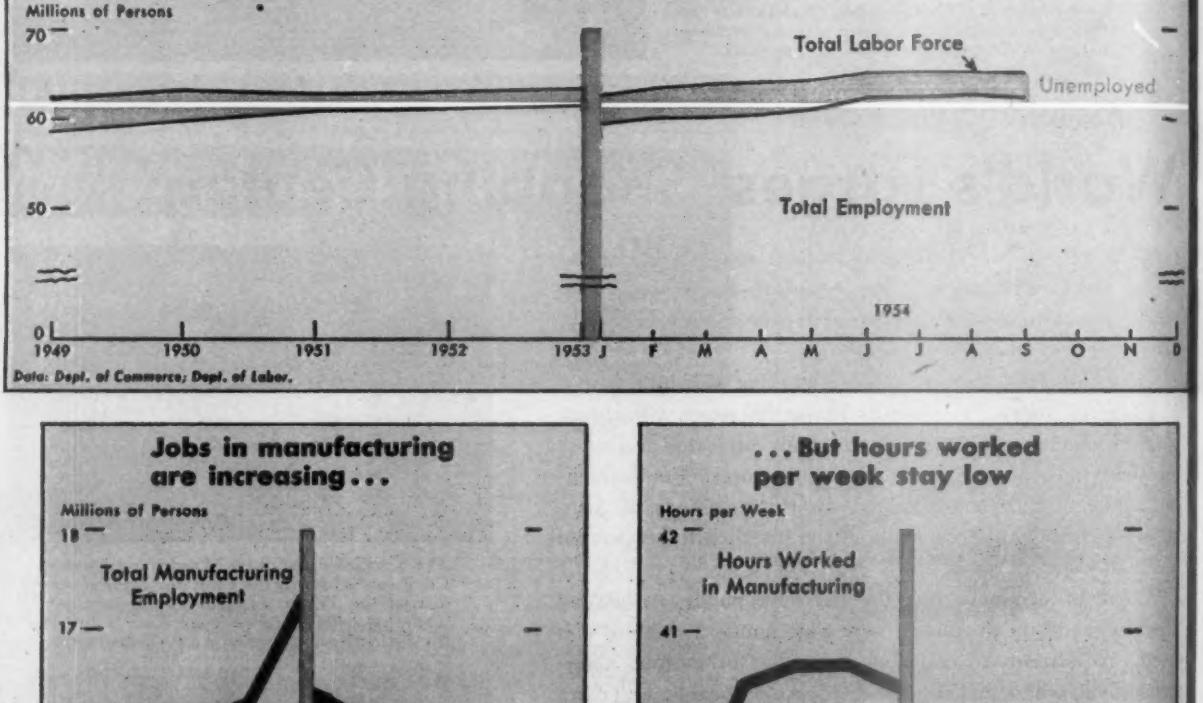


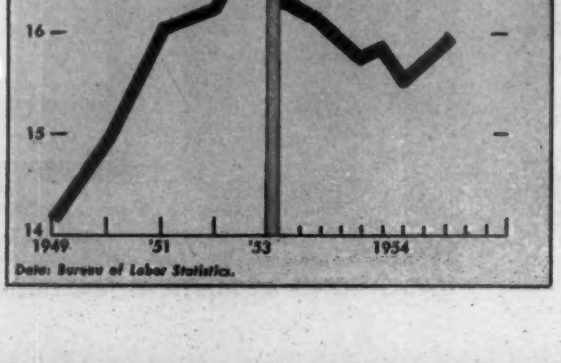
ARMSTRONG ACOUSTICAL MATERIALS

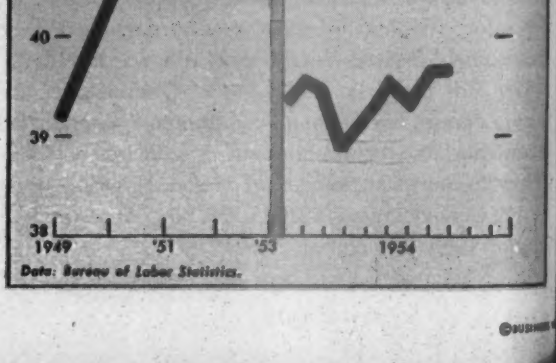
Employment and Unemployment











The Figures Behind Speeches

The Democrats, particularly those in Illinois, Michigan, New York, and other industrial states, consider unemployment the most telling issue they have in the 1954 campaign. To those Republican candidates who can't ignore it, the issue is at the very least highly controversial; to some it's the hottest potato they carry.

The facts on unemployment are complex. Depending on what is used for an index, depending on what date is being talked about, depending upon which trend is studied, you can justify almost any statement or forecast.

• **Significant**—Above and beyond the argument, however, and despite the conflict of interpretations, two pieces of data are undeniably significant.

The first is that, except for three months last year, more people are at work than at any time before in our history. The 62-million-plus gainfully employed, as revealed by the latest figures available, are a universe larger than that which encompassed our entire labor force—both employed and unemployed—as recently as five years ago. The 3-million-plus presently unemployed represent, in statistical terms, the expansion of the labor force to its unprecedented level of almost 66-million.

The second set of facts, which is important too, relates to those among the unemployed who are covered by the state unemployment compensation systems. The Bureau of Employment Security in the Labor Dept. has just completed a survey of this group.

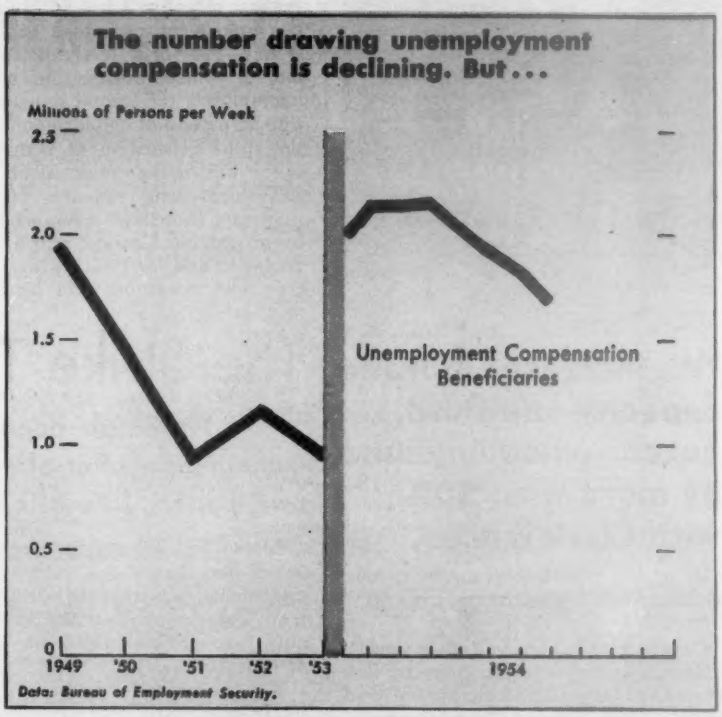
Bear in mind, however, that the BES survey covers only one phase of the unemployment picture. Where the Census Bureau totals all employment and joblessness and the Bureau of Labor Statistics reports on nonagricultural workers, BES covers only the insured unemployed. But its figures are a barometer for what's coming in the other surveys, and an indicator of how serious, or how favorable, the situation is.

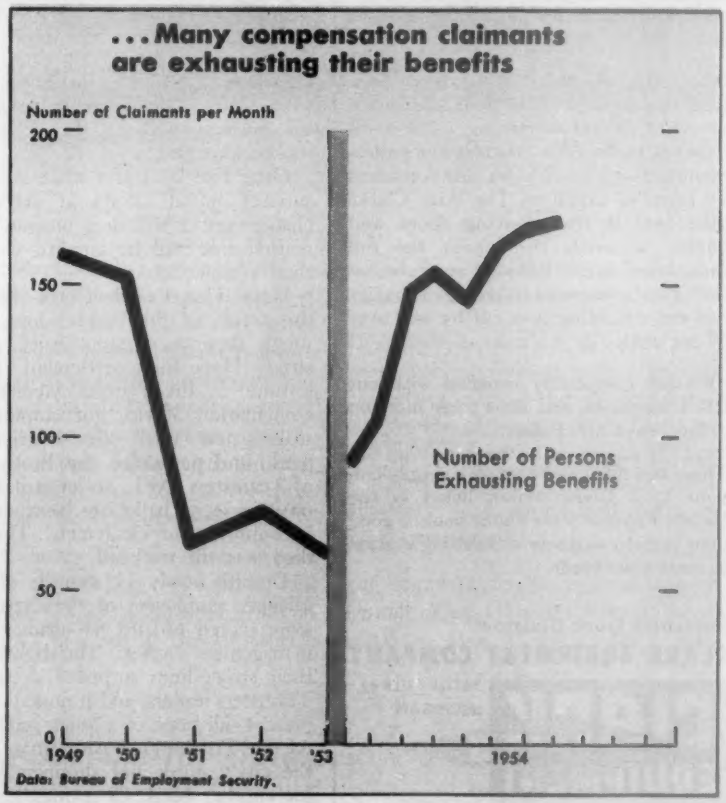
For instance, a major part of the workers covered in BES tabulations are in manufacturing, transportation, and mining industries. Steady unemployment has centered in these industries, and the levels reflect a situation that isn't affected so strongly by seasonal changes as is the case in agriculture and construction.

The three-part BES survey covers:

Initial claims: Those who have become unemployed and file for weekly benefits under unemployment insurance. September totals about 800,000, some 20% below last spring.

Insured unemployed: Workers who are receiving weekly checks from state





"We increased storage capacity one-third, cut car-unloading time by more than 50% with Clark trucks,"

SAYS JOSEPH PALESE, PLANT SUPERINTENDENT, SALERNO-MEGOWEN BISCUIT CO., CHICAGO.

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Practically all material received from local suppliers—bags of flour and sugar, drums of oil and shortening, other items in boxes, sacks, rolls—is loaded on pallets manufactured by Salerno, and furnished by them to suppliers. The busy Clarks take over at the receiving doors, and handle materials throughout the full production cycle. Benefits are substantial: a 33% increase in storage capacity and car-unloading time cut by well over 50 per cent.

"We are completely satisfied with our Clark machines, and have three more on order," says Mr. Palese.

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CLARK EQUIPMENT

unemployment insurance offices for a specific period. Currently, the weekly checks are averaging about $24 and the duration of payments 29 weeks.

Exhaustion of benefits: Those who have received all the payments they have earned under the various state systems reflecting their previous period of employment and wages paid.

• **Key**—The first level indicates the rate at which workers are becoming unemployed; the second shows the continuing pattern of employment. But it's the third—exhaustion of benefits—that is the key to the employment picture.

Workers who run out of benefit rights are those who have been jobless for an extended period, and have been unable to find work meanwhile. Serious economic conditions will be reflected in these totals. So far this year, through September, more than 1-million workers have run through their benefits. While the first six months' total was 100% higher than the same period in 1953, these totals have been dropping since July.

BES officials are unable to account for the workers who have exhausted their benefits. The surveys don't show how many remain in the labor force and secure other work, or drop out of the work pool—such as housewives—to return to the home. Census figures will show their disposition.

In any case, they cannot collect any further benefits from the states until they have gone back to work to earn the "credits" that provide the rate and duration of insurance payments.

The Strike That Didn't End

Pittsburgh department store drivers' flat "No" to management offer after 11 months on picket lines surprises own leaders, forecasts bleak Christmas for city.

Many an industrialist, and labor leader, too, has found comfort in the undeniable fact that all strikes eventually come to an end. But some walkouts take an unconscionable amount of time getting there.

The strikes that last the longest are, more often than not, of this sort: A strong, wealthy union, concerned with areawide standards and representing workers who have skills employable elsewhere, is pitted against an employer who can manage to go on conducting his business without the service the strikers provide.

Once that kind of a strike starts and survives initial efforts at settlement, chances are it will drag on and on, as neither side will be satisfied with less than a clear victory.

• **Hope That Failed**—That's the story, this week, of Pittsburgh's long, often rough department store truck drivers' strike. Hope for a settlement rose for a time, as the Federal Mediation & Conciliation Service got employers to make a new "final" offer to strikers last week, and persuaded the Brotherhood of Teamsters (AFL) to let strikers vote on it in secret ballots to be counted by a committee of clergymen. The hope died over the weekend.

Despite nearly 11 months of strike idleness, employees of the department stores voted 661 to 84 against taking management's offer. The tightness of their strike lines surprised even many Teamsters leaders, and it ended—for the present—all hope of a quick settlement. As one Pittsburgh businessman put it, the city's stores and shoppers "are in for another bleak Christmas."

The length and the bitterness of the Pittsburgh strike—which has piled up sky-high costs (BW—Sep.25'54,p114)—make it a case history of disrupted labor-management bargaining.

• **Starting Gun**—The strike started last Nov. 28 when Local 249 drivers walked out in a deadlocked dispute over management's right to decide two points: when and if helpers should be assigned to drivers; whether parcel post should be used for deliveries to outlying areas.

Both sides were adamant, but everybody looked for a quick settlement in the busy Christmas-shopping season. CIO retail clerks stayed on the job, and stores remained open.

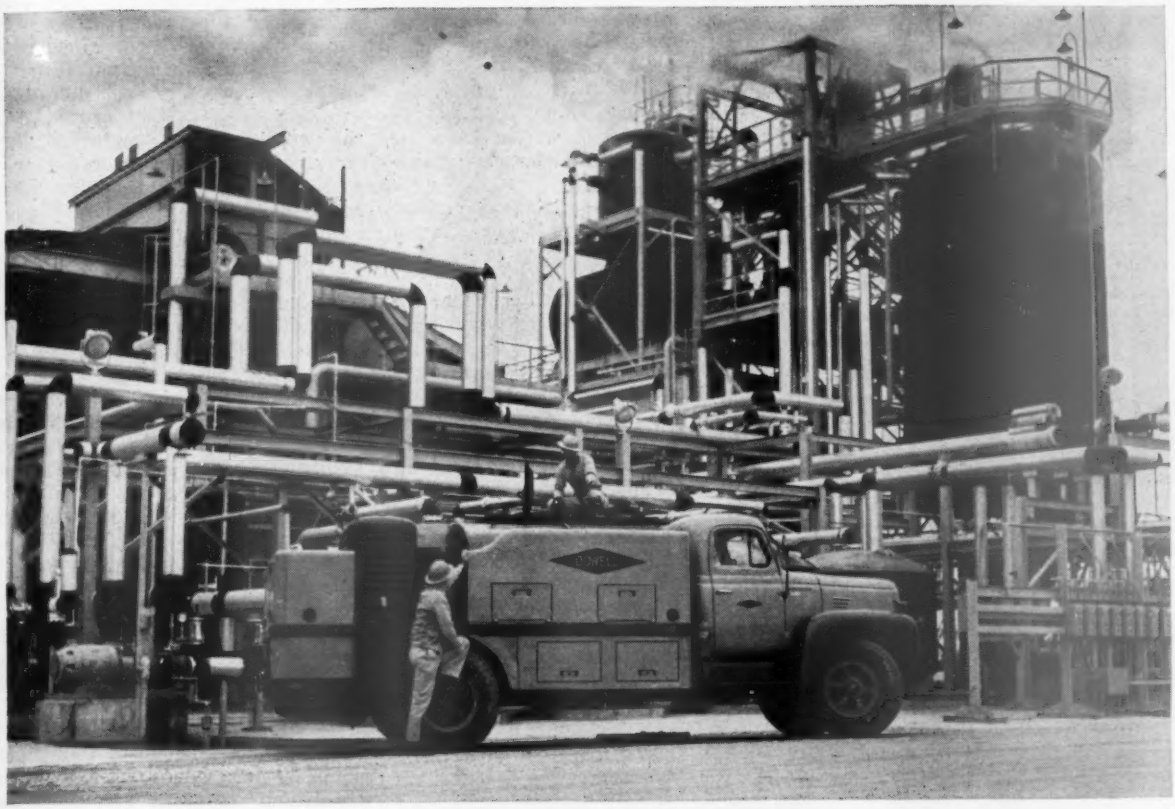
Here's the story from then on.

December—Pittsburgh's Labor-Management Council intervened, after two weeks, in an effort to get stalled negotiations back into motion. The parties got together Dec. 21, but bargaining broke off again within a day. Heavy picketing failed to stop shoppers; store business dropped, but it wasn't shut off. First picketing outbreaks brought warnings from the district attorney. The year ended with each party waiting for the other to make an offer.

January, 1954—The strike was unpopular, and strong feeling for a settlement built up—on the outside. Mayor David L. Lawrence was suggested as a mediator, and was willing to act, but store managements said he wouldn't be acceptable. Picket line disorders continued, and Kaufmann's filed a damage suit against the Teamsters. Negotiations were still in stalemate.

February—Three store windows were

PLANT PROFITS UP $77,000 AFTER CHEMICAL CLEANING



DOWELL method of cleaning lines and process equipment cut plant turn-around time 22 days

Dowell was called to remove scale from pipe lines and process equipment in a plant where the semi-annual turn-around usually meant long, costly down-time. Dowell engineers used liquid solvents to do the job. It was not necessary to dismantle the equipment as the chemicals were introduced through regular connections. The job was done in far less time than ever before.

In fact, outage time for the year was reduced 22 days, representing an estimated $77,000 additional profit to the plant. As a result, Dowell Service was made a regular part of the plant's turn-around maintenance program.

The Dowell method of preventive maintenance cleaning with chemicals has helped to avoid the replacement of many miles of water and process lines and thousands of dollars worth of plant equipment. Chemical cleaning often uncovers weak points and helps to avoid later failures.

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shattered by bricks on Feb. 5, and a $1,000 window at Kaufmann's was broken four days later. The Pittsburgh Central Labor Union (AFL) called on the pro-labor city administration to take action, but had no success. The FMCS entered the dispute and got parties together for three meetings—all futile.

March—The strikers offered to submit the dispute to arbitration; the stores refused. David J. McDonald, president of the United Steelworkers (CIO), offered to mediate, but got no takers. As the long strike pinched teamsters (their international union refused strike benefits), government surplus food was released in Pittsburgh; strikers got a big share despite complaints of "a subsidized strike."

Picket line disorders and other strike-connected violence brought Central Labor Union (AFL) orders to stop outbreaks. Harry Tevis, head of the Pittsburgh Teamsters Joint Council, entered the dispute. Once more, negotiations showed no progress during the month.

April—Strikers called on the Pennsylvania State Federation of Labor for support; the reaction was cool. Three federal mediators held exploratory talks with the parties, while rubbish piled up in stores and the international head of the Teamsters, Dave Beck, admonished the local to "settle this strike or abandon it." But neither party was willing to compromise. Mediators abandoned settlement efforts "for the present" on Apr. 22.

May—Direct negotiations were revived, without success, in mid-May. After two were arrested in rioting outside Gimbel's, Thomas L. Fagan, president of Local 249, warned strikers to stick to peaceful picketing.

June—The federal mediation panel of three met with the parties again in mid-June; still no results. Rumors of dissension within Local 249 spread fast, but strike lines held tight—with no sign of weakness anywhere.

July—The district attorney—whose orders had up to now been directed almost entirely against strikers—warned stores that the continued accumulation of rubbish was a hazard. Federal mediators tried again in mid-July to find some common ground for a settlement, but found none. Afterward, Federal Mediation Director Whitley McCoy criticized both parties for failing to take constructive steps to end a walkout that "has already lasted far too long." Pickets angered by the continued restocking of stores succeeded, for a day, in blocking railroad deliveries to the stores.

• **"End It Now"**—With the strike eight months old, Local 249 officers announced at the start of August that it must be brought to an end; their admonition to employers to "end it now" wasn't accompanied by any offer to compromise. Increasing violence reached a climax in police gunfire and union defiance of warnings against massed pickets. A load of furniture was waylaid and burned.

September—Frayed tempers began to show in a series of arrests, battles between independent truckers and pickets, new charges and countercharges. City Councilman Patrick Fagan, father of strike leader Thomas L. Fagan, accused stores of strikebreaking tactics; later he bawled out a police lieutenant on strike detail, on the same charge.

The full city council called on stores to resume negotiations; they refused, as the record of violence lengthened. Federal mediators told the parties they were willing to step in again—if there would be any point in it. A group of 11 small unions involved in the walkout along with Local 249 agreed to discuss contract terms, and rumors of an impending break in the strike spread. But the talks collapsed.

• **October: Peace Plan**—That was the status of the long and bitter deadlock at the start of this month, when Federal Mediation Commissioner John Murray, of Philadelphia, went to Pittsburgh. Working carefully and quietly behind-scenes, he drew up a "procedural agreement" or timetable for continuing negotiations—and got management's Labor Standards Assn. and the Teamsters to sign it.

In accordance with Murray's plan:

On Oct. 11, store and union negotiators met, and the employers presented a new offer of settlement terms—including some concessions.

On Oct. 12, Local 249 considered the employers' offer, made counterproposals; it was willing to make some concessions on the helper issue, but wanted an 8½¢ wage hike in return.

On Oct. 14, a day late by Murray's time table, store employers submitted a "final" offer to strikers. Local 249 officers and negotiating committeemen unanimously rejected it. Under Murray's program, it had to be submitted to strikers for a secret vote, and union officers recommended its defeat.

On Oct. 15, at a testimonial meeting for Tevis, now a Teamsters vice-president, Beck was scheduled as guest speaker. He didn't show up, blaming the hurricane Hazel. But in a telegram he deplored the continuing strike. Tevis, in indirect reply, said he had endorsed the strike (Beck hasn't, yet) and is "as anxious as anybody" to see it ended—but only in a victory.

On Oct. 17, strikers met for the secret vote on the "final" offer of store employers. The turnout was surprising: 745 voted of about 750 eligible. Stores figured they had against them at least 250 votes of helpers on trucks who might lose jobs. But they had

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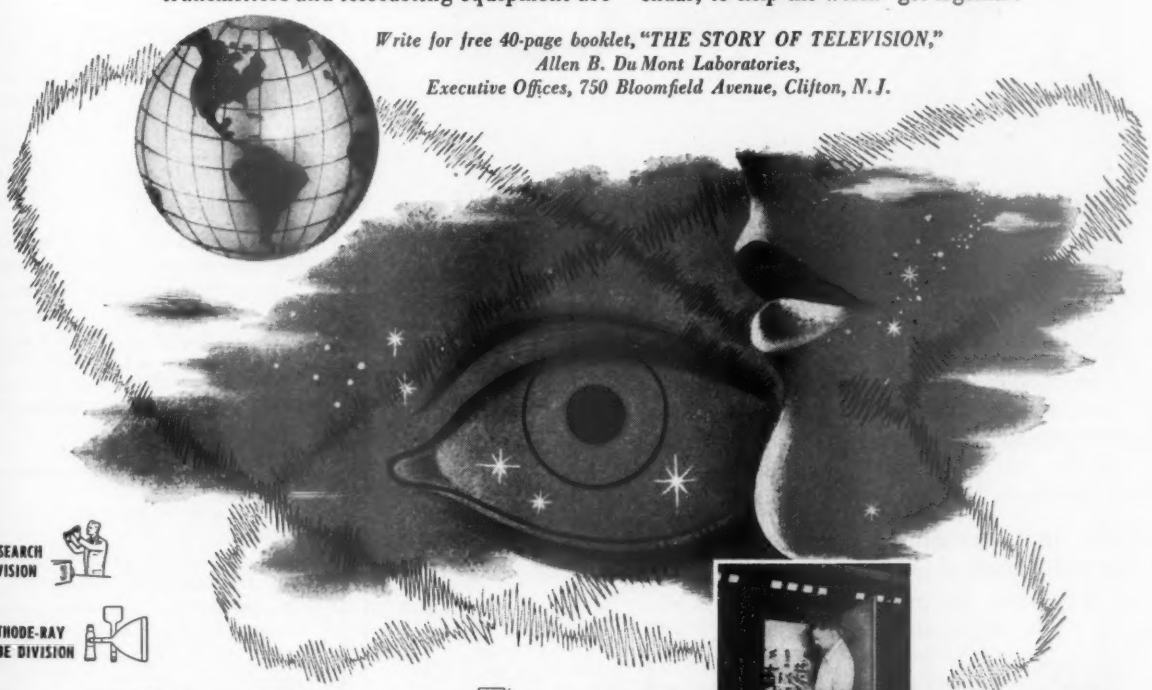

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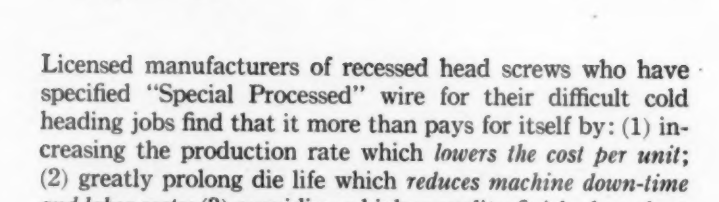

hoped they could pick up at least enough votes for the management offer to support their bargaining position, even if the offer lost out. Instead, Local 249 officers got an 8-to-1 backing that brought an announcement that the strike would "continue to a victory."

LABOR BRIEFS

Sit-in strikers left American Safety Razor Corp.'s Brooklyn plant last week ending a 14-day demonstration against plans to move to Staunton, Va., in May (BW–Oct.9'54,p171). The strikers' United Electrical Workers local said the sit-in achieved its purpose of focusing attention on ASR's moving plans; the corporation retorted that its timetable for the transfer was "naturally greatly accelerated" by UE's strategy.

•

Workers should invest in companies they work for, the Illinois Federation of Labor agreed last week at its 72nd annual convention in Peoria. Delegates adopted a resolution sponsored by the executive board as a means of strengthening the free-enterprise system and of developing good employee relations.

•

Oil organizing competition is building up between AFL and CIO in the Pacific Northwest, now that General Petroleum is opening a refinery at Bellingham, Wash., and Shell Oil has one going up at Anacortes, Wash. AFL's Metal Trades Dept. will work through a large regional union covering 14 crafts.

•

A new wage pact was signed last week by New York Shipbuilding Corp. and an AFL union that represents 6,500 employees. It provides for a 5¢-an-hour increase and for union cooperation against work interruptions of any kind (BW–Oct.16'54,p178). With this assurance, the company will resume bidding for Navy contracts.

The Pictures—American Chain & Cable Co.–144 (top lt.); American Zinc Institute–102; Bill Clinkscales–46; Henry G. Compton–120, 121, 122, 123; General Electric Co.–112; Herb Kratovil–180 (top); Robert Lackenbach–140; McGraw-Hill World News–126; Fred Meyer, Inc.–53; Ed Nano–Cover, 180 (bot.); RCA–186; Stone & Webster–135; Industrial Development Engineering Assoc.–114 (bot. lt.); United Press–92, 164; U. S. Rubber Co.–86, 87, 114 (bot. rt.); Wide World–136; Yale & Towne Manufacturing Co.–114 (top rt.).

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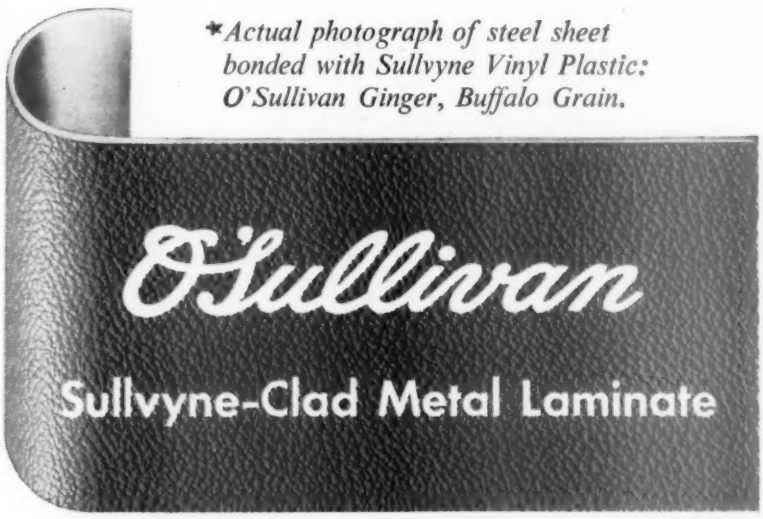

Actual photograph of steel sheet bonded with Sullvyne Vinyl Plastic: O'Sullivan Ginger, Buffalo Grain.

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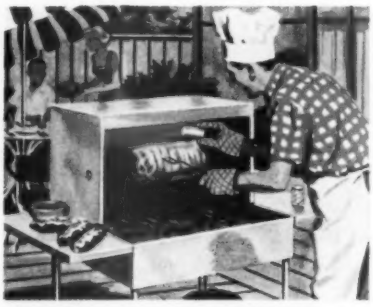

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PERSONAL BUSINESS

BUSINESS WEEK
OCT. 23, 1954

Winter brings a sharp rise in many illnesses, ranging from colds to heart disease.

This rundown of medical advances shows what has been done—and what remains to be done—to help you keep fit:

• **Common cold.** Real progress is finally being made. Last year British researchers for the first time successfully grew the cold virus in a test tube. This means that they may soon be able to conquer it.

• **Influenza.** Improved vaccines give a six-month protection against common types of flu. If a new virus shows up, vaccines to meet it can be prepared in time to protect most of the world's population. Chances are against a repetition of the devastating influenza epidemic of 1918-19.

However, no flu case is to be taken lightly. Doctors regard the disease seriously, since it contributes to the death of many heart-disease patients, and because a virulent form can show up at any time.

• **Respiratory infections.** It's still as easy as ever to get pneumonia (BW—Oct.16'54,p184). But thanks to antibiotics, recovery is not only the rule rather than the exception; it is also fast.

As an important cause of death, pneumonia is now limited to infants less than a year old, and to the very old.

Antibiotics also take a lot of sting out of other respiratory infections, such as streptococcal sore throat, tonsillitis, and scarlet fever.

• **Meningitis.** This inflammation of the membranes of the brain and spinal cord was almost always fatal only 50 years ago. Sulfa drugs, antibiotics, and other advances have almost reversed that today. Some doctors think that a 100% recovery rate is within sight.

• **Childhood fevers.** Whooping cough, mumps, measles, chicken pox, and German measles generally reach a peak in late winter or early spring. They rarely cause death or serious complications today.

The "triple vaccine" given to children largely prevents whooping cough (as well as tetanus and diphtheria). Gamma globulin modifies the wallop of mumps and measles, eliminates complications.

• **Jaundice** (infectious hepatitis). There's no specific treatment for this virus disease that attacks the liver, mostly in cold weather. And patients may be incapacitated for months.

It has been found recently, however, that gamma globulin contains antibodies against jaundice, can thus nip outbreaks fast. It's particularly effective in preventing the disease from spreading to other members of the family.

• **Frostbite.** Should you rub frostbitten parts with snow or with warm water? U. S. Army doctors in Korea, where frostbite was a major problem, have settled the question: Rapid rewarming is best.

Also, prompt treatment with drugs heparin and Dicumarol cut damage to frostbitten limbs and help avoid amputation. They prevent blood clots from forming.

• **Ulcers.** Winter gives ulcer patients a rough time—for some reason attacks are more frequent. The immediate cause of peptic ulcer is excessive stomach acidity. So medical treatment is directed toward neutralizing or cutting down the secretion of gastric acid.

One method that has proved successful with many patients is the use of antacid agents, such as Gelusil. Another is antisecretory drugs, which block the vagus nerve.

• **Heart and circulatory diseases.** Most deaths from these occur between November and March. These diseases are among the great unsolved medical problems.

But a number of drugs are now available that effectively lower blood pressure. That eases considerably the immediate fatal dangers involved.

Nutritional deficiencies are most likely to appear during winter, so extra vitamins are important. Vitamin C is a key factor in resisting infection; get it in extra amounts of orange juice, or in tablets. And children and pregnant women especially should have additional Vitamin D, since they don't get enough sun to meet their winter needs.

—•—

If you should happen to need one, it's not difficult to find a reliable ghostwriter. Many good professional authors are on call by ghostwriting firms. They will do any writing job—from a two-line blurb to a book.

You can find ghostwriting companies listed in the Literary Market Place, published by R. R. Bowker Co. Also, newspapers, publishing houses, and top literary agents can give you a lead to a competent author who will work with you and remain strictly anonymous.

Like most businesses, ghostwriting has its charlatans. As a safeguard, ask the Library of Congress or the New York Times to check backgrounds of writers you are considering.

A ghostwriter must have, of course, a general description of what you want—subject, audience, purpose of the material. And he'll want to make sure he writes it in your general vocabulary range and style.

Charges run anywhere from 1¢ a word for light editing to 10¢ a word, depending on such things as topic, amount of research needed, and time. Some jobs are done on a flat-fee basis. And, in cases involving a full-length biography or novel, you may have to share the royalties.

—•—

Notes for sportsmen: Three new books are now at your bookstores. The Complete Golfer, edited by Herbert Warren Wind (Simon & Schuster; $5), is a collection of short stories, essays, history, instruction, and cartoons. Good reading for the snowbound golfer.

Bobbs-Merrill has just added two titles to its series on outdoor sports: The Complete Book of Hunting, and The Complete Book of Guns, both by Larry Koller, each selling for $2.75. The hunting book has detailed information on all American game; the gun book the same on all current guns.

A new portable duck blind is on the market. Called Porta-Blind, it weighs 18 lb., can be erected in two minutes, folds to pack in a car trunk. It holds two men and sells for around $25.

—•—

Duncan Hines has a new national travel credit-card plan for executives. Called the Duncan Hines Signet Club, it allows credit at 600 Hines-recommended restaurants, hotels, and motels. Annual membership fee is $5.

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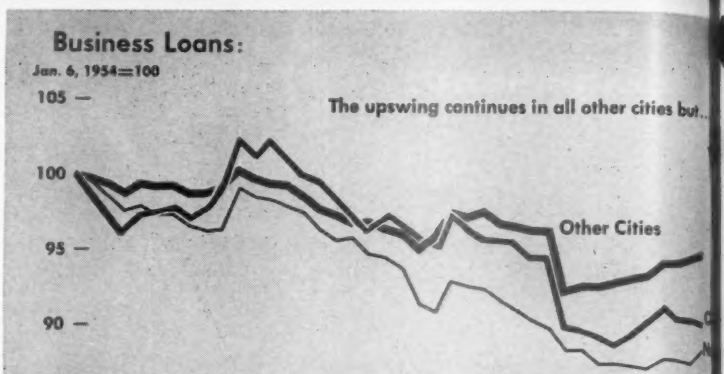
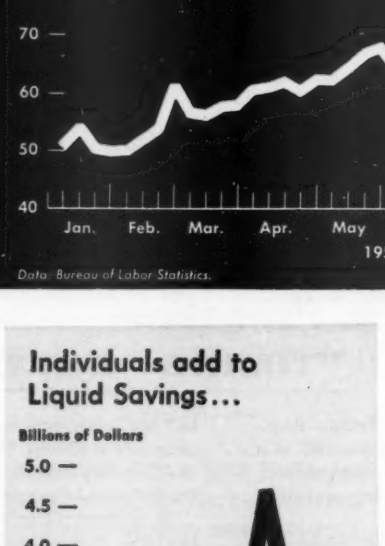




Where Have They Been Rising?

When business loans swung upward in mid-September (BW-Sep.25'54,p50), it looked as though the long overdue rise had finally come. But this upswing was followed by two weeks of net decline. At the end of this two-week period, figures from 94 reporting cities were either at or below the figures for the same period in 1952. It looked as if the mid-September upswing was a false sign of the seasonal increase.

However, when you probe behind the figures, you find that the upswing has been going on not only since mid-September but, in some cities, for two and a half months.

One important exception is New York City, where, despite this week's $72-million gain, loans are still near their low point for the year. The gain in New York resulted primarily from borrowing by sales finance, food, liquor, and tobacco companies. Chicago is also lagging behind expected seasonal gains. This suggests that inventory liquidation has probably gone on longer in New York and Chicago than in other regions of the country.

1954 Price Rise Wiped Out

The 1954 decline in cocoa bean prices has been more spectacular than its rise. Like the prices of coffee beans, they climbed sharply and then flopped. For eight months, cocoa bean prices in New York had rolled up record after record, soaring as high as 72.3¢ a pound. Some attributed the rise to market rigging.

In recent weeks, the price of cocoa beans plummeted from an August high down to about the December, 1953, level. As the 1954 gain began to slide off, prices appeared to be regaining normal levels. Reasons: The present forecast for fall and winter crops in British West Africa is 225,000 tons, as compared with last year's crop of 205,000 tons (BW-Apr.17'54,p.130) — an increase of almost 10%. Dealers are now finding few buyers for present supplies, because U. S. confectioners have about filled their needs for the coming holiday season.

New Record This Year?

In the second quarter of this year, Americans continued to save at a high rate, and added $3.5-billion to their liquid savings, according to the Securities & Exchange Commission. This figure exactly matched the increase in liquid savings during the first quarter. The combined figures for the first two quarters of this year — as compared with $2.4-billion and $3.1-billion in the first and second quarters of 1953 — indicate an increase of around 27% over the first half of last year. This year may very well set a new record for individual savings.

While individuals were saving at this high rate in the second quarter, they were also increasing mortgage indebtedness by a near-record $1.9-billion. Other indebtedness — for autos and other durables and some consumer goods — rose $400-million for the same period. Currency, bank deposits, and insurance purchases were at a very high level, but purchases of securities showed some decline.

SOUND TALK
by
Carl W. Lemmerman

here's how "Silence Service" kept a plant open by shutting it up

We've got a lot of stories in our files, but I'm especially proud of this one. It seems that a manufacturer of jet engines was about to be closed up because testing the jets was making too much noise for the community to stand. This was during the national emergency and something had to be done.

S O S FOR "SILENCE SERVICE"

The story has a happy ending. ISC "Silence Service" went quickly to work. We designed, engineered, manufactured and installed a complete soundproofing "package." The decibels were cut down to size, and the flow of jet engines to our Air Force was not interrupted.

WE CAN HELP YOU, TOO!

This is no isolated case. Every day some industry is being helped to quiet by ISC "Silence Service." We're proud to say that no noise is too big, no job is too small for our team to tackle. Don't put up with excessive noise in your plant. Put "Silence Service" to work *today!* Just write, outlining your noise problem to me.

Be sure and ask for our booklet "Sound Facts."

Carl W. Lemmerman
President
INDUSTRIAL SOUND CONTROL, Inc.
45 Granby St., Hartford 12, Conn.

Top management of Thompson Products relaxed while studying strategy at the Vermont home of Chmn. Frederick C. Crawford (second from left). At far right is John David Wright, making his mark as president as . . .

Tapco Learns How to Change Its

Ask practically anyone who knows anything about Thompson Products, Inc., and the first thing that pops into his head is a man's name—Fred Crawford.

Crawford is the smart engineer, the joke-telling, ebullient, loyalty inspiring executive who for 20 years was Tapco's president and for a generation has represented his company both to insiders and outsiders. As chairman of the board, he's still deeply involved in the company, but today a close look at Tapco reveals that the company is shifting a long way from the pattern Crawford set for it 20 years ago.

• **The Change**—Here are the high spots of the new Tapco:

• A new kind of president is cutting out a niche for himself alongside Crawford. He's John David Wright (cover), a studious, detail-minded lawyer with a quiet, convincing manner.

• Two new areas of great potential—electronics and nuclear power—have come under Tapco's guns. Up until three or four years ago, the company

WORKERS LISTEN as Pres. Wright explains what the company's new ventures mean to them and their jobs.

gets Spots

restricted itself to parts for automotive, aircraft, and other power plants. Wright says "the move into electronics may be the most important move Tapco has ever made."

• **Two Meetings**—The pictures on this page are symbolic of what's happening now at Thompson Products, both in management and in its line of business.

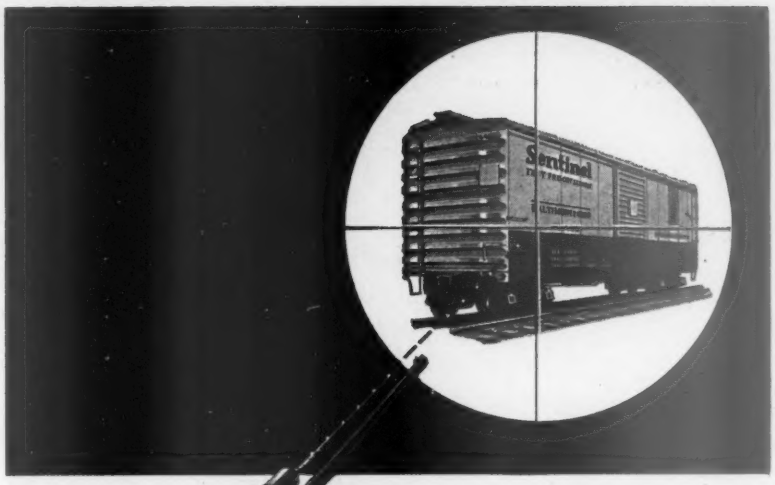
The top picture was taken last summer in Vermont where Thompson's top management people spent a week at Crawford's family home. The purpose of the conference was to get away from the shop for an objective study of (1) what Thompson has been doing in the past 20 years and (2) what it probably should be doing in the future.

Looking back, they decided the company had been right in going heavy on military products, particularly aircraft parts, and that the right line of work for Tapco is to stick to highly engineered, highly specialized products.

Looking ahead, they saw two principal fields that should be worked: electronics and atomic energy.

The bottom picture is a meeting of employees—one of a series that wound up last month—when Wright let them know how the changes toward electronics and atomic power will affect them.

• **Looking for Growth**—There's not much question that Tapco, originally an auto parts supplier with sales of $4-million in 1933, is making changes as important as its invasion of the aviation business before World War II. At the time, scoffers said Tapco was crazy to dabble outside the auto industry. But results during the war silenced the



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WE HAVE A "BEAD" ON YOUR CAR AT ALL TIMES

When you ship by B&O Sentinel Service, your carload of freight is constantly within range of our "sentinels." We tell you at once if its schedule is interrupted.

Through the "Automatic Records" feature of Sentinel Service, shipper and receiver are notified *automatically* if an interruption occurs—then advised again of reforwarding.

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High strength, light weight of ACCOLOY Sling Chains means greater utility and better values

As one of the nation's oldest manufacturers of chains, AMERICAN CHAIN & CABLE has always been a leader in research. It pioneered many of the worthwhile improvements in chain making which resulted in the high strength alloy chains which daily lift or hold millions of pounds of material and equipment safely.

AMERICAN CHAIN led in the development of automatic electric welding equipment which applies exactly the right amount of heat, in a matter of split seconds to the limited area at the weld of each link. Electric eyes accurately control the heat so that each weld is identically strong.

Chain made by AMERICAN is not just chain. It is made of many analyses, held to strict specifications as to diameter of material and length and width of link. The right material for each kind of chain . . . the most modern chain making methods . . . constant research and development . . . and expert advice as to the right chain for your particular needs . . . these are your assurance of better values in all the many types of welded and weldless chain made by AMERICAN.

But that's not all. ACCO *Registered* Sling Chains (and many other types, too) are proof-tested, as a complete assembly, to insure quality of product. They are individually identified and sold to you with a signed registry certificate warranting their quality. They are available through distributors in industrial centers. They give you greater safety and low service cost . . . better values.

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...the Key to Better Business

Buyers in today's markets are insisting more than ever that every dollar do its full duty. Outdated products stand little chance against those whose improved design and construction promise added durability, greater usefulness, better value . . . The path to better values is a two-way street; far-sighted management men know that only through insistence upon better values in their own purchases of materials, components, machines and equipment can they give the better values that are the key to better business.

• ACCO products are designed and manufactured to be "intentionally better." They are used directly, or as component parts in a wide variety of products and machines. They help do many jobs better. • 16 Divisions of the American Chain & Cable Company manufacture more than 100 essential products. ACCO'S most widely used products are:

ACCO-*Registered* wire rope and chain slings • R-P&C valves • WRIGHT and FORD electric and hand hoists • WEED tire chains • AMERICAN welded and weldless chain • PAGE chain link fence • HAZARD Lay-Set preformed wire rope • ACCO steel castings • PAGE wire and welding rods • TRU-STOP brakes • TRU-LAY cable and TRU-LOC swaged terminals for aircraft • TRU-LAY preformed wire rope • TRU-LAY push-pull controls • CAMPBELL abrasive cutting machines • HELICOID pressure gages • PENNSYLVANIA lawn mowers • MARYLAND bolts and nuts • MANLEY automotive equipment • "ROCKWELL" hardness testers • OWEN mattress and furniture springs.

Information on any ACCO product gladly sent on request. Address your inquiry to Market Development Department, American Chain & Cable Company, Inc., 929 Connecticut Avenue, Bridgeport, Connecticut

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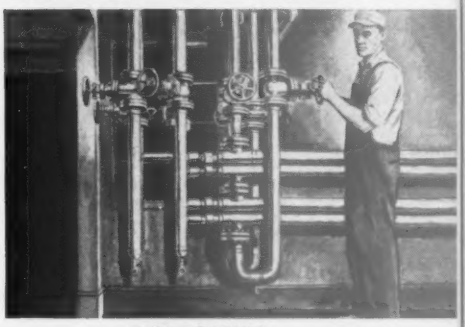
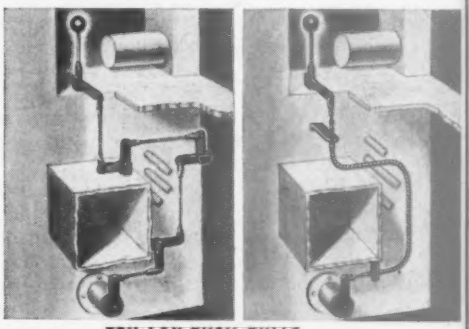
PAGE FENCE

PAGE first introduced chain link fences of aluminum and stainless steel more than ten years ago. Today these same fences, along with those of galvanized steel, stand as proof of good design, manufacture and metal.



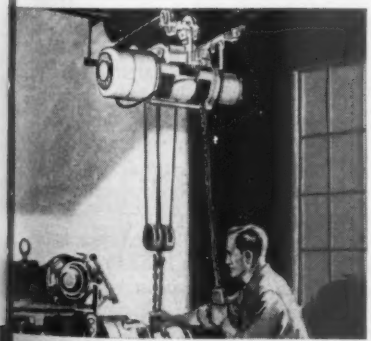
R-P&C VALVES

Here is a complete line of valves—bronze, iron, steel, bar stock. For high or low temperatures or pressures. In a variety of types and a range of sizes. All designed and field tested for longer, lower-cost service.



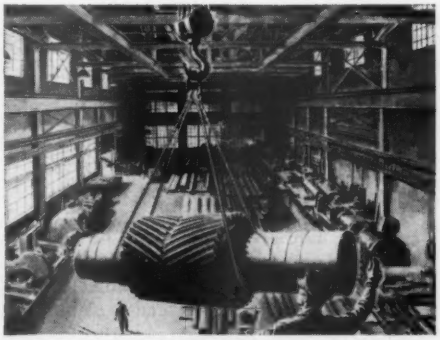
TRU-LAY PUSH-PULLS

PUSH-PULLS (*right above*) snake around obstructions to eliminate links and levers. PUSH-PULLS are solid as a rod yet flexible as a wire rope. Completely lubricated and sealed for uninterrupted service.



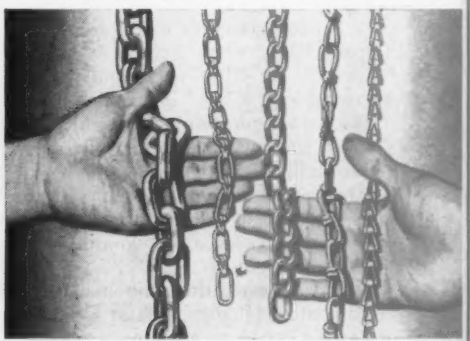
WRIGHT HOISTS

Here's a simple formula: Purchase price +maintenance=total cost. WRIGHT Hoists of sturdy construction are so designed that all parts requiring service are accessible for lowest maintenance cost.



ACCO REGISTERED WIRE ROPE SLINGS

Made from Green Strand Wire Rope with Dualoc Endings and ACCO Registered Fittings —sizes and lengths for all normal lifting. All types of slings can be assembled from these units including chokers, baskets and bridles.



AMERICAN CHAIN

AMERICAN CHAIN makes all types and sizes of welded and weldless chain for use in plants or as assemblies to become parts of products, and for transportation, farm and home use. There is a type and size for every use.

". . . electronics will provide a high, thick hedge against the vagaries of defense and Detroit . . ."

TAPCO starts on p. 180

scoffers. Tapco became a major supplier of the aircraft industry, ran its sales from $14-million in 1939 to a peak of $131-million in 1944.

It's apparent that Tapco's present management, under Wright's leadership and with Crawford's counsel, is counting on electronics—much of it tied to aviation—to give a similar impetus to Thompson's growth.

I. New Fields

It's natural for Thompson today to be wondering about its future. On one count, sales will probably be down this year from last year's company high of $326-million. Wright attributes the drop almost entirely to declining defense demands on the company, which he says took on an extraordinary load early in the Korean War. Last year, about 75% of Tapco's sales were defense; this year it will probably be down around 60%.

On a second count, all auto suppliers are concerned over trends in Detroit (page 72). The turn in the auto industry seems to be toward integration, which means a smaller growth potential for vendors. Thompson has weathered this shift better than most auto parts suppliers, Detroit observers say, because it has been able to come up with a procession of new products.

• **Electronic Hedge**—Electronics, it is hoped at Tapco, will provide a high, thick hedge against the vagaries of defense and Detroit.

In the first place, it will broaden the base of the company's defense effort, for much of the electronics business will be military. In the second place, it will provide a cushion—probably an inflatable one—to protect the company from adverse make-it-or-buy-it decisions in Detroit.

Tapco's activities in electronics date from 1950, when its special products division started to manufacture a coaxial switch used in radar, television, and communication equipment. Within six weeks, an electronics division was established. About a year later, Thompson bought Antenna Research Laboratory of Columbus, Ohio, and thereby picked up a group of specialized engineers.

A year ago, after the management walkout at Hughes Aircraft Co. (BW—Oct.3'53,p61), Thompson saw a chance to do some high stepping in electronics. It backed, with 49% interest, Hughes's two top scientists, Dr. Simon Ramo and Dr. Dean Wooldridge, and other former Hughes people in the formation of Ramo-Wooldridge Corp. The company is now involved in development work in electronic systems for guided missiles, radar, electronic computers, and other applications. A subsidiary is working on semiconductors (BW—Aug.28'54,p88).

• **Defense Angle**—All of this has a heavy military tone to it, and chances are defense orders will account for a good piece of Tapco's hoped-for boost in electronics business.

Tapco's heavy involvement in defense is less risky that most. It's largely in the highly advanced electronics, where the military's need is not urgent, even though there may be fluctuations in demand for a particular product.

Secondly, Tapco's defense work, unlike that of, say, a tank or howitzer manufacturer, is adaptable. Electronics engineers working on fire control systems can be switched over to industrial work such as automation equipment; radar specialists can be used to advantage on commercial microwave systems. The same degree of adaptability applies to production and sales people as well.

The situation is the same in atomic energy. This is hush-hush at Tapco, except for hints that its work is in controls for nuclear power plants and in the fabrication of components for those plants. From this kind of work, Tapco will be able to move toward either military or civilian applications of atomic energy.

• **Commercial Uses**—Already, Tapco has extended its electronics venture into the commercial field. In October, 1953, it bought Bell Sound Systems, Columbus (Ohio) producer of commercial sound systems with an annual sales volume of $1.5-million, and last April it bought Dage Electronics Corp. of Beach Grove, Ind. This makes Tapco one of the two largest producers of closed-circuit TV equipment.

II. New President

Lawyer Wright is enthralled by the possibilities in electronics. He says: "Your eyes pop just listening to these engineers talk about how we'll be able to control and schedule production electronically, use it in our planning, and develop its many commercial possibilities."

This makes Wright sound like a bug-eyed layman, dazzled by laboratory magic. Actually, he's sophisticated in engineering matters. Once he was called upon to fill in for an engineer in addressing a group of aviation writers on the company's jet aircraft products. A Tapco official says, "Dave got up and gave a flawless presentation—you'd have thought he'd been an engineer all his life."

Wright is in every sense a professional management man, known well within Tapco, but not so well outside. For him, following the colorful, renowned Crawford onto the stage was a case of being put on the spot. But, to the surprise of many skeptics, Wright has taken a firm grip on Tapco. You can see three reasons why the transition has been smooth:

• Soon after he became president in 1933, Crawford hand-picked Wright, then a 28-year-old Cleveland lawyer, to be his assistant. In the 20 years that followed, Wright stayed at Crawford's shoulder, was groomed for the presidency by Crawford.

• Wright has been with Tapco's top management, for nearly as long as Crawford, so he not only is well known inside the company but also knows the company equally well. Wright now carries out Crawford's custom of talking frequently to the workers. When he did so a few weeks ago, one old hand said: "I haven't heard a good story since 1953 (when Crawford stepped out as president) but I sure know what's going on in this company."

• Wright is responsible for most of Tapco's organizational setup and system of controls, so he's playing in his own park.

III. New Structure

The organizational plan at Tapco is decentralization, fashioned after those at du Pont, GM, and Standard Oil (N.J.). Wright had been in favor of such a move for years, and it was put in effect on an experimental basis in 1945, and on a full-fledged basis in 1949.

• **Divisional Shifts**—Currently, there are 19 divisions, each with a manager responsible for all its activities. These managers answer to a vice-president, who usually rides herd on several divisions. A division is created when it becomes feasible for the engineering, production, and sales of a product line to be grouped under one operating team. For instance, a complex mechanism for the Boeing B-52 recently got too big for the accessories division, where it was developed. At the same time, commercial pumps had outgrown the special products division, where they were housed. A major change was in order.

The Wright system went to work. A few weeks ago a new division was created for commercial pumps, another for the bomber mechanism. The remaining items under special products

is this the country's fastest growing manufacturing area

There is much evidence to show that the Lower Wabash River Valley is the fastest growing manufacturing area in the country.

And it is easy to understand why this has happened. For example, there is no question about fuel; it is a leading coal producing area and most of the major gas lines cross the area. Electric power? Of the more than 40 generating stations located here, two are among the world's largest. Labor? The area has a population of 2½ million. Transportation? It is the hub of a 9000-mile inland waterway system—it is served by over 20 major railroads and has well maintained highways. Chemicals? There is abundant fluorspar, high calcium limestone, dolomite, rock asphalt, phosphate rock and barite to name just a few mineral materials. And, many other raw materials are in or near this area located between supplies and markets.

Write for this new *INDUSTRIAL FORE-SITE Guide

This fact-filled book of more than 400 pages is a comprehensive economic study of the Lower Wabash River Valley. Contents include a geologic map and cross sections—maps of inland waterways and major railroads—freight schedules—power supply details and electric rate charts—locations and sizes of gas lines—the water supply for specific towns—crop and livestock production by counties—forests and timber resources—population characteristics—types, locations and sales of wholesalers and retailers—plus a full description of each of the 20 major industry groups.

You or your consulting firm may obtain a copy of "Industrial Potentialities of the Lower Wabash River Valley" by writing to:

***INDUSTRIAL FORE-SITE**
—a shrewd management quality that gets the jump on competition by choosing plant sites with superior economic advantages.

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were turned over to the valve division, and the special products division was eliminated.

• **Top Management**—Such changes are important but they are minor compared with the major change that has taken place at the top of Tapco.

Crawford took over Tapco when it was struggling, and he saw his job as that of selling Thompson Products. He did this by making himself known as a powerful personality. He did and does play to an audience.

He got to the top of the National Assn. of Manufacturers, spoke widely, and took part in scores of public functions. At the same time, Crawford was a shrewd, clever engineer.

Wright, on the other hand, is a quiet, even-dispositioned man. He answers his own telephone, directly from the company switchboard. He's not a gusher, conveys his thanks by a warm smile and a quiet word.

At the same time, he has a very tough mind. He studies every detail carefully, and he's strict about dollars. Of the division manager's quarterly forecasts he says: "I'll never be satisfied until the forecasts can become the company's quarterly report."

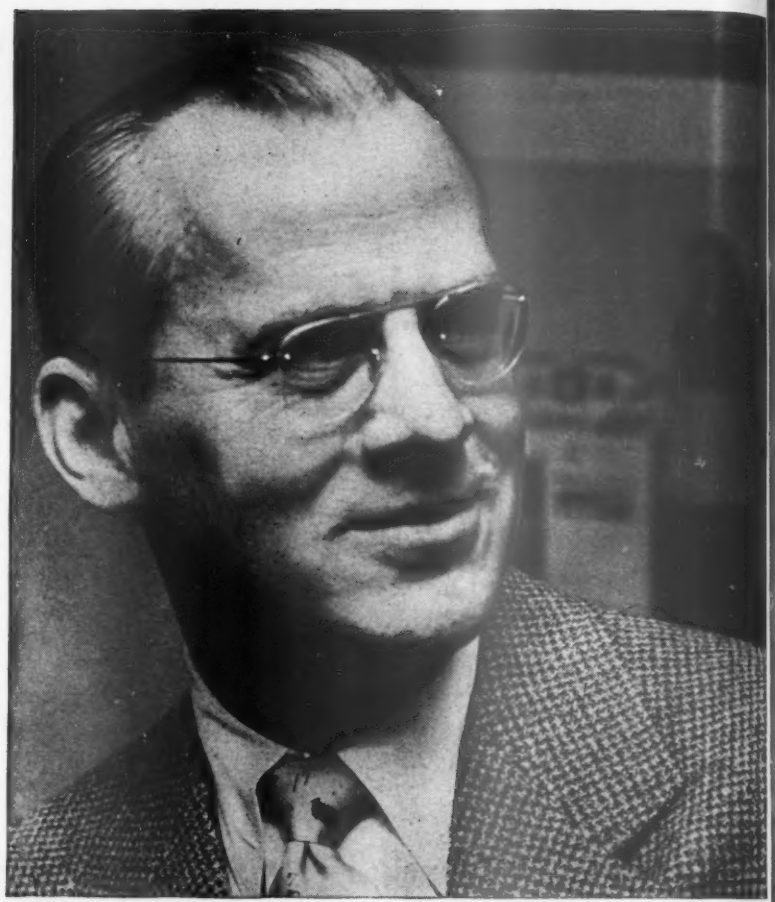
• **Compatible**—It is hardly conceivable that two men could be as diametrically opposite in manner, action, and outside-the-company interests, yet so harmonious in business, financial, and social thinking as Crawford and Wright are.

During Tapco's long build-up period, the Crawford side of the team—the strong personality—was of prime importance. Now, in a period of consolidation and of movement into new areas, Wright—the professional manager—will have his innings.

B-School Keeps Course For Younger Executives

The Harvard Business School, cheered by the success of its first training program for younger executives (BW—Jun.6'53,p68), will start a second 16-month session in January.

Next spring, 76 young executives—average age 31, with five to 10 years' experience—will graduate from the first course. Fifteen of the group are from Westinghouse Electric Co. (BW—Jun. 26'54,p100), one of the corporations that helped to promote the course. The program is intended to fill the gap between undergraduate work, which a man would normally complete in his early twenties, and advanced management training, such as the courses given at Harvard, Northwestern, and elsewhere, where the average student is a middle management man in his early forties.



CECIL M. DUNN, newly appointed president, symbolizes a change of thinking . . .

FOR MAGIC CHEF:

No More Diversification

As late as April, 1953, top management at Magic Chef, Inc., was dead certain its future could be secured by a magic word: diversification (BW—Apr. 11'53,p170).

Today, just a little over a year later, you hear a new tune in the company's fancy headquarters in St. Louis. Says Arthur Stockstrom, long-time president of the company: "We are not concerned with diversifying any more. We'll concentrate on our old line of market-tested products."

Like some other companies in the postwar period, Magic Chef has found out the hard way that diversification sometimes just compounds your troubles (BW—Jun.19'54,p132).

• **Reversing Field**—This month, two top executive appointments bring to a head the 53-year-old company's attempts since the end of 1953 to reverse its field.

For the first time since the company was formed in 1901, it will be headed by someone other than a Stockstrom, the St. Louis family that founded the firm as American Stove Co. On Nov. 1, Cecil M. Dunn (picture) becomes president—replacing Arthur Stockstrom, who moves up to board chairman. Dunn has been president of RCA Estate Appliance Corp., a subsidiary of Radio Corp. of America.

Already on the job is James A. Marohn as financial vice-president and treasurer, the same job he has held for the past couple of years with Gruen Watch Co., Cincinnati.

The job of these outsiders will be to rebuild Magic Chef's position in its traditional lines—a position that has given it the ranking of largest stove maker in the U.S. Dunn will be the sales promoter; Marohn the wary, cost-minded accounting expert.

• **Troubles**—Magic Chef can blame part of its troubles on the general trend of the appliance industry in the past two years. Volume has been off all along the line, especially stoves. Magic Chef's stove output dropped 20%—and gas

LESS THAN 23 CENTS PER HOUR

will put this new 3-hp, No. 2, Model CHL plain milling machine to work in your plant with

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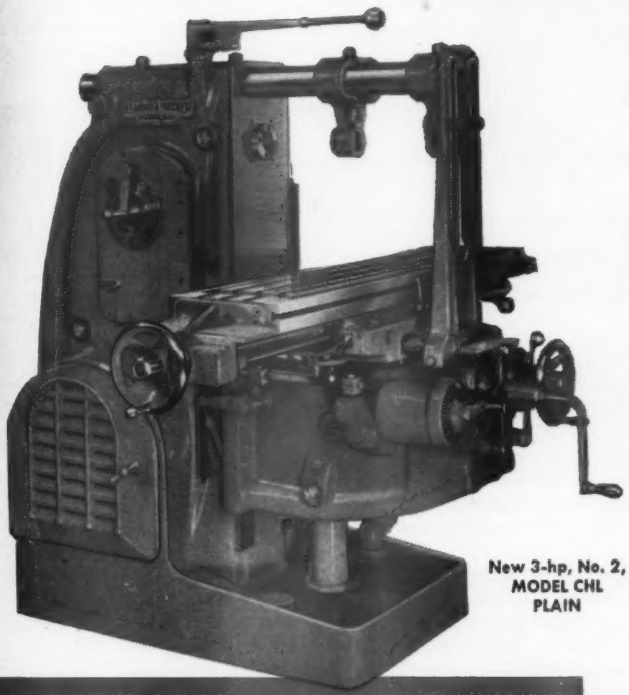
PROGRAM



New 3-hp, No. 2, MODEL CHL PLAIN

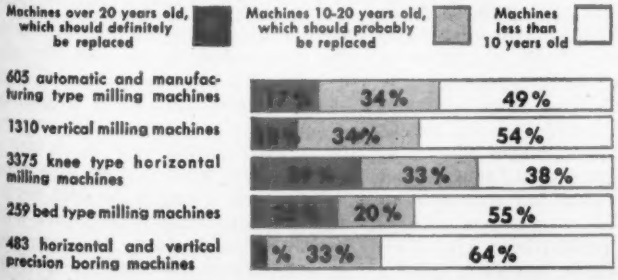
NO! We didn't make a mistake. Under Tool-Lease Plan "A", one of three seven-year lease agreements offered by Kearney & Trecker, you are asked to make two semi-annual rental payments, totaling 25% of the machine's price during each of the first three years. Actually, in dollars and cents, you are asked to invest approximately 23 cents per hour for a new 3-hp, No. 2, Model CHL plain milling machine. That means a machine installed in your plant and in operation — for pennies an hour!

What's more, under Tool-Lease, you can rent any of over 250 standard milling machines or precision boring machines. All are available under three basic plans, with varying options to continue or terminate the lease, or to purchase the equipment. If you require special machinery or heavy-duty CSM bed types, special agreements will be considered.

For complete information on Tool-Lease, see your Kearney & Trecker representative, or mail coupon to Kearney & Trecker Corp., 6784 W. National Avenue, Milwaukee 14, Wisconsin.

MACHINE TOOL OBSOLESCENCE IS BECOMING CRITICAL! WHERE DO YOU STAND?

Here's the picture in a typical industry — GENERAL INDUSTRIAL EQUIPMENT — (see chart below). Of the 6032 standard knee type horizontal, vertical, bed and manufacturing type milling machines and precision boring machines in use today — which can be replaced by Tool-Lease equipment — 22% are more than 20 years old, 33% are 10 to 20 years old, 55% are more than 10 years old!


Machines over 20 years old, which should definitely be replaced
Machines 10-20 years old, which should probably be replaced
Machines less than 10 years old
605 automatic and manufacturing type milling machines
17% 34% 49%
1310 vertical milling machines
13% 34% 54%
3375 knee type horizontal milling machines
29% 33% 38%
259 bed type milling machines
25% 20% 55%
483 horizontal and vertical precision boring machines
3% 33% 64%

Figures adapted from 1953 American Machinist survey of metalworking industry

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stoves make up about 75% of the company's business.

Then, too, defense contracts in the industry have been cut back. For Magic Chef, Stockstrom says, a $10-million program for napalm bomb housings ran out along with a substantial contract for aircraft wing tanks.

Such defense contracts, plus a sharp Korean upturn in consumer sales, had pulled Magic Chef out of a similar hole in 1949.

• **Tryout**—Diversification had looked like one answer to the company's problems. Some new executives were hired to guide a three-year program to widen the firm's line. But the timing couldn't have been worse.

One big hope, for instance, was electric ranges. That seemed a natural to match the company's well-established gas line. But, says Stockstrom, "The electric range business is tough for an independent, regardless of how good his product is."

The big producers—Hotpoint, Frigidaire, General Electric, and Westinghouse—have 80% of the market. This is a formidable lineup of electrical appliance leaders to buck in a period of hard-biting competition.

Or take another Magic Chef move. It picked room air conditioners as a new line—but so did a lot of others. "We had a rugged year in room air conditioning," Stockstrom says. "We got rid of our machines, but we had to slash prices to do it."

Plans for a clothes dryer and a dehumidifier have been dropped. The room air conditioner line may fall out, too. Magic Chef will continue to operate its Cleveland plant, manufacturing hotel and restaurant equipment.

• **Jolt**—Magic Chef management has known since mid-1953 that the company was in trouble. In the last half of that year losses wiped out earlier profits and the company wound up the year $109,000 in the red. In the first quarter of this year, the loss grew to $800,000, largest since the Depression years. By the end of June, 1954, red figures soared to $1.4-million. With a $3.8-million insurance company debt over its head, the company was jolted into action. It first turned to A. T. Kearney & Co., Chicago management consultants. Several attacks were made:

• Billing, collecting, and handling of credits are being decentralized so that the company's six field offices can move faster. Sales people and the consumer will be closer together—and a lot of lost time will be saved now that the central office can be bypassed.

• Federal Foundry Co., Indianapolis, owned and operated by Magic Chef as a source of castings during the era of shortages, has been closed as unprofitable. Magic Chef will buy castings from St. Louis firms.

• Assembly and fabricating operations, mostly of oil and gas room heaters, are being shut down at Lorain, Ohio. They'll be consolidated with the company's modern 600,000-sq. ft. stove factory in St. Louis.

• A new labor contract revision with the Stove Mounters' International Union (AFL) was engineered this fall by G. P. Eichelsbach, Jr., production vice-president, and Joseph Lewis, president of the international union. Through revision of time studies and job ratings based on liberal, boom-time terms, direct labor savings should amount to about $400,000 a year.

In addition to all this, top management has taken steep salary cuts. Supervisory and white-collar personnel, enlarged in boom years, have been reduced sharply.

• **Spark**—Already, orders are on the increase. The labor force in St. Louis, reduced in the past few months from 1,200 to 600, has been increased to 850. Some new defense orders have come in; gas stove orders are building up; September operations were about at the breakeven point.

Now, with Dunn and Marohn to spark the organization, Magic Chef figures it is in a position to start out 1955 on a money-making basis.

These two fit Magic Chef's needs nicely. For one thing, they have worked together before. Both were executives of Noma Electric Corp. (now Northeast Capital Corp.). As vice-president of Estate Stove Co., then owned by Noma, Dunn got a reputation for skills in the range appliance field. He took over administration of Estate when RCA bought it in 1952.

Marohn worked closely with Dunn at Noma, won his reputation as a cost-conscious financial man when that company's stove business was going through a shakeout similar to Magic Chef's.

Nobody Was Kept Guessing

The Fuller & Smith & Ross advertising agency was ready for the emergency that occurred Oct. 7. When its president died, everyone knew exactly what to do.

The problems of continuing an organization after a top executive's death are by no means peculiar to a one-man business. They are no less harassing to a company that's organized on the most complex lines of delegated authority. Such a company can no more afford to allow the distractions and the jockeying for power than the one-man business can.

This month, Fuller & Smith & Ross, Inc., a big Cleveland advertising agency, managed to transfer management control without loss of time after its top man died unexpectedly. This was possible only because the company had prepared itself—down to the last detail—for just such a contingency.

When Pres. Allen L. Billingsley died suddenly on Oct. 7, the remaining officers gathered for a quick board meeting. Ten minutes later, the necessary job and title changes were in effect.

• **Plan**—Fuller & Smith & Ross, being an advertising agency, probably stood to lose more through its top man's death than do companies in most other fields of business. An ad agency's products are creation and service; these are produced by people. Rob an ad agency of one of its top people, and you cut its productivity. The annals of advertising are filled with stories of agencies that withered away after top men quit or died.

That is the main reason why Allen Billingsley, while he was alive, spent a large amount of time and energy making sure that his outfit would remain standing after he left.

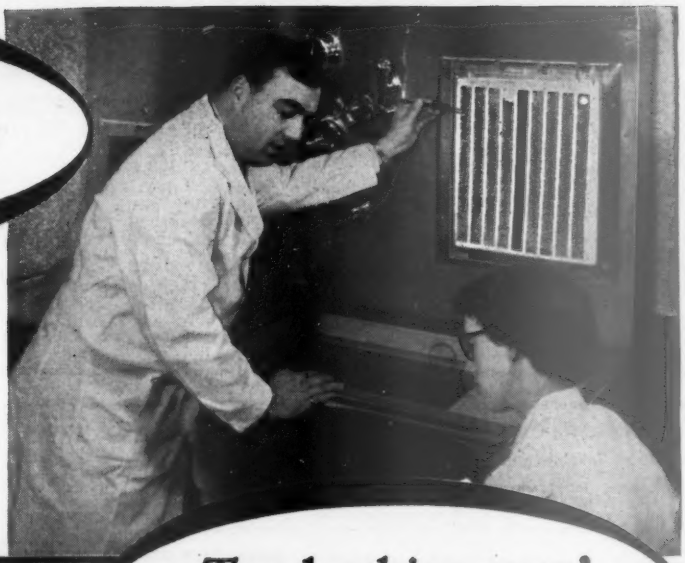
His first move toward this goal came in 1940. At that time, he held 60% of the company's outstanding stock. He started to cut the relative size of his holdings by having stock issued to key personnel. This, he felt, would help him attract and hold the kind of personnel he wanted—men capable of running the agency in his absence. It would give his executives a stake in the company, and also mute the feeling that he was its owner and therefore its only possible boss.

• **Standings**—By 1949, Billingsley felt that he had gathered around him a group of men who could carry the agency into the future without him, when the need arose. He started training them to do so.

Each member of the management team was exposed to all facets of the advertising agency business. He was shifted from one job to another. His abilities and preferences were discussed with him constantly—by Billingsley, the board of directors, and the other management team members. Eventually he slipped into a niche all his own.

Billingsley's program did not end there. As Billingsley saw it, no man in the organization should be kept guessing about anything to do with his job and his future. Every executive knew exactly where he stood. He knew what it would mean to him if one of the others left. He also knew why. Fur-

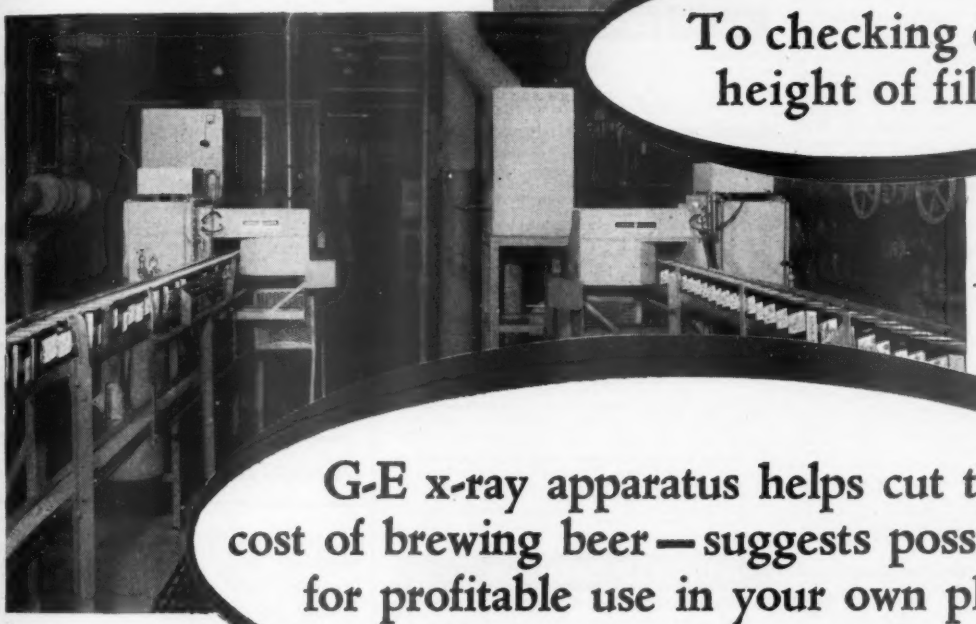
From inspecting grain for malt...



RIGHT: X-rays made by a G-E Grain Inspection Unit give Froedtert Malt Corporation, Milwaukee, an accurate record of the soundness of each car of grain and malt.

BELOW: Miller Brewing Co., Milwaukee, has installed high-speed G-E Hytafill x-ray gages on their can lines to measure correct fill.

To checking cans' height of fill...



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BUSINESS WEEK

Classified Advertising Division 330 W. 42nd St.—New York 36, N. Y.

thermore, every executive participated in drawing this detailed organizational chart. No part of it was drawn or changed before the executive concerned had discussed it many times with Billingsley and other officers.

• **Clockwork**—As a result, Billingsley's sudden death caused only sorrow—not chaos. Every man in the management group knew that Robert E. Allen, 41-year-old head of the company's New York office, was slated to take over Billingsley's chair. Every man knew what other changes would follow behind this one, and why.

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• **Company**—The agency in which this happened is a big one. Its billing this year is expected to total about $45-million. Among its clients are Westinghouse, Alcoa, Diamond Alkali, Hercules Powder, and Libbey-Owens-Ford.

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At FSR, an executive who leaves takes nothing but himself and his skills. Under the Billingsley system, the gap in the organization closes right away, and the organization immediately sets about the task of compensating for the loss.

MANAGEMENT BRIEFS

Another textile machinery company is making progress in the industry's diversification moves (BW—May8'54, p120). Whitin Machine Works has finished negotiations to make a new line of offset duplicating machines for use in offices, production to start early in 1955.

•

General Mills, Inc., is moving its regional headquarters out of Chicago's Loop into Park Ridge, a suburb. The company is building a two-story, 40,000-sq.-ft. building to house the regional headquarters staff of 150 people. General Mills has had offices in the Loop since 1885.

•

Three insurance fields, described by the American Management Assn. as the ones least understood by management, will feature a Nov. 10-12 meeting of AMA in Chicago's Palmer House. Under study will be workmen's compensation, product liability, and business interruption insurance.

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For a Better Civil Service

Over 2.3-million men and women are members of the federal government's civil service. No matter what may be done in the way of economizing, a big army of civil servants is a permanent fixture in the U. S.

This huge army is a relatively new development, with more than half the present total of government jobs being created in the last twenty years. Its swift mushrooming growth has presented many big new problems and we are indebted to the nonpartisan American Assembly for a fresh and much needed look at the major difficulties facing our civil service today.

One problem that needs rethinking involves the present inability of an incoming Administration to provide itself with officials of its own political philosophy in policy-making posts. This was particularly evident in 1952 when the Eisenhower Administration found that most of the jobs immediately below cabinet level had been blanketed into the merit system by the outgoing Administration.

The President had to create this special category of posts, a move that was assailed as being everything from "patronage" to "the return of the spoils system." But such charges are absurd on the face of it, for, in all, only a little over 1,000 jobs were put on this list.

In no way did the creation of a special category affect the 2.3-million regular civil servants. But unless every new Administration is given leeway to staff posts where decisions are made and carried out, the civil service corps will be subject to perennial attack.

Another measure needed to improve the civil service is to raise the salaries of those in top-level jobs. The lower grades of the civil service, which include the great majority of jobs, are well paid in relation to private industry. But top grade officials, who are executives, are not so fortunate. A mere 1% of federal employees earn over $9,000 a year—the top salary is only $14,800 a year.

This inadequate pay scale is mainly due to Congressional insistence that civil servants should not earn more than a congressman. Without intending to belittle congressmen or the work they do, we believe that an executive with experience and special skills should not be held to a salary that is nowhere near the corresponding pay in industry. Congress should be big enough to recognize that the present scale at the top actually prevents the government from recruiting and holding the best brains available.

In the current state of world tension, security is perhaps the most important problem. But the advances made by the present Administration in carrying out its program to rid itself of risks have not satisfied all sides. Indeed, the situation has reached the point where it is alleged that some civil servants who want to leave their jobs are reluctant to do so through fear that they will be considered questionable characters.

Whether this is true or not, the new problem of security certainly needs further study and improvement. The American Assembly suggests that the President appoint a commission of outstanding citizens to make a complete review of loyalty-security procedures and, more importantly, to take the whole question out of the field of partisan political warfare.

The Assembly also recommended that government take a leaf from industry's book and improve the provisions for training and selecting executive employees. We think this, too, is a sound idea. Now that we must reluctantly accept the fact that a large government bureaucracy is here to stay, every effort should be made to improve it.

A Bevin for Asia?

Important news, whether foreign or domestic, usually makes the headlines. But it occasionally goes unnoticed. That was certainly the case with a significant statement made at Ottawa by Harold Stassen, Foreign Operations Administrator. It came during a meeting of the Colombo Plan, which is the new mutual aid scheme for South Asia sponsored by the British Commonwealth.

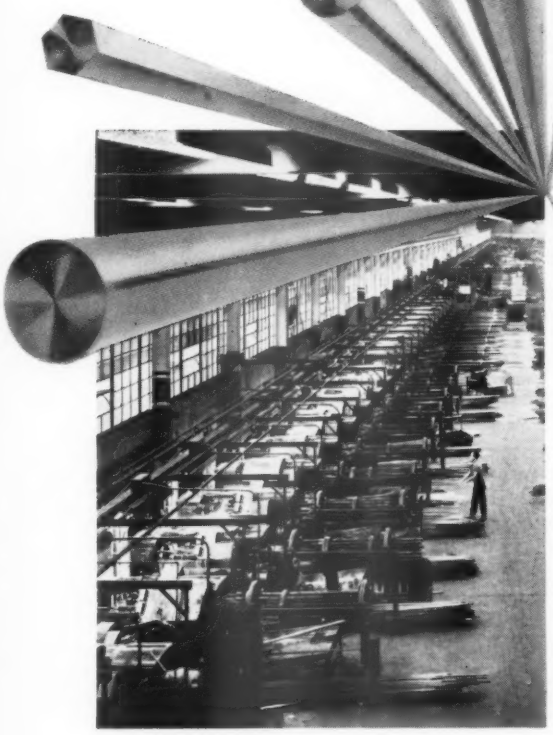
Stassen explicitly pledged increased economic aid to the non-Communist nations of Asia—a pledge, in effect, to the members of the Colombo Plan (BW—Oct.16'54, p25). Implicit in his offer was the suggestion that the Colombo Plan should be turned into an organization similar to the Organization for European Economic Cooperation, which has done so much to develop economic and political unity in Western Europe. Thus, Stassen was virtually offering Asia what Secy. of State George Marshall offered Europe back in June 1947.

This was no off-the-cuff offer. Since the Western defeat in Indo-China, officials in FOA and the State Dept. have been doing a lot of thinking about the problem of stopping Communism in Asia. The South East Asia Defense Treaty signed at Manila last month was a first step. But clearly something more is needed. So a plan has been taking shape in Washington to stop Communism in Asia the way we stopped it in Europe back in the early days of the cold war.

There is no thought in Washington of aid on the order of the Marshall Plan. In fact, there seems to be plenty of money available for Asia under present appropriations. Nor is there any thought of building quite as elaborate an organization as OEEC was in the days when the U. S. funneled $5-billion a year through it.

We do not know how hard Washington plans to push this scheme. Perhaps nothing more can be done until we see what response Stassen's initial offer gets. It may be that there is no Asian leader prepared to pick up the ball as British Foreign Secy. Ernest Bevin picked up Marshall's offer seven years ago. But if there is an Asian Bevin, we believe that the U. S. should do everything possible to make the plan work.

New Harvey deep-drawn machining stock will cut your costs



New Harvey deep-drawn machining stock cuts your costs through long tool life, true threading, good surface finish and a minimum of finishing operations. This new deep-drawn machining stock developed by Harvey has acquired peak production characteristics for the metal machining industry by means of the unique method by which it is "worked". Deep-drawing under extremely high pressure creates a completely new metallurgical structure. The resulting macrostructure change of the metal, giving high, consistent uniformity from the outside to core, is to a large degree responsible for the fine machinability of the new material. It allows fast cutting with highly desirable small chips, yet extends tool life, and gives true threading.

Harvey deep-drawn aluminum machining stock was developed to meet our own exacting needs

Increasing demand for aluminum screw machine parts obliged Harvey research metallurgists to develop a new material to fulfill our most critical demands. The completely integrated facilities of the Harvey plant at Torrance, California—foundry, extrusion mill, and large machining plant all under close engineering and metallurgical control—have provided ideal circumstances for the development of Harvey's special deep-drawn aluminum machining stock. More than 40 years of machining all types of material brought out the conditions necessary for top quality aluminum stock. Harvey metallurgists fulfilled those conditions and now it is available for your machining operations through any of the Harvey Aluminum Sales offices. Write for the bulletin on New Harvey Machining Stock.

An independent producer of aluminum extrusions in all alloys and all sizes: special extrusions, press forgings, bar stock, forging stock, tubes, impact extrusions, aluminum screw machine products and related products.

MAKING THE MOST OF ALUMINUM FOR EVERYONE

HARVEY Aluminum

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Another new development using

B. F. Goodrich Chemical *raw materials*

B. F. Goodrich Chemical Company does not make the machine or any of the products shown.

Geon stars in continuous molding process

THIS automatic machine molds industrial items or toys in a continuous process—an operation based on the versatile properties of Geon polyvinyl paste resin.

Molds fed with Geon paste resin move on a continuous chain, passing through an oven to fuse the material. Items come out of the molds perfectly formed, ready for finishing.

Automobile arm rests, dolls or toy footballs are but a few of the many products economically made from Geon paste resin. If this suggests an idea for a new product, get in touch with us for help.

There's a whole family of Geon polyvinyl materials that make sales-successes from dolls to upholstery, rust-and-acid-proof rigid piping, and top grade electrical insulation. Helpful technical information is yours for the asking. Please write Dept. A-11, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON colors